

OFFICE MANAGEMENT

A HANDBOOK

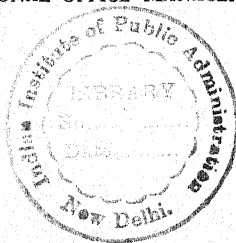
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PREFACE

This volume has been prepared to meet an insistent demand by office managers and supervisors in both large and small companies for a comprehensive, authoritative and practical Handbook covering the management of the modern office.

This demand is an outgrowth of a steadily growing tendency on the part of senior management to merge the multiplicity of control systems and mechanisms into one single, inclusive and closely integrated system of control. This movement toward centralization has, in some measure, affected all activities of business, but it has exerted a particularly strong influence upon the scope and activities of the office. There is abundant evidence to indicate that office management is gaining rapid acceptance as a major function and is being placed in the business structure at the same level as other departmental functions.

This development has in turn elevated the office manager to the status of a major executive and broadened his contacts, responsibilities and authorities. It has, therefore, become necessary to change the job specifications for his position. The former requirements for a high degree of technical knowledge and supervisory skill must now be supplanted by a specification with less emphasis on technical knowledge and more upon leadership and administrative skill. The job now requires that the office executive be qualified to sit at the council table with that management group which assumes responsibility at the administrative level for at least an important part of policy making and long range planning activity.

It is hoped that this Handbook will be of assistance in meeting these new demands. Its content is sufficiently comprehensive to cover even the broadest scope of office management functions. From a technical point of view, the subject matter is inclusive and accurate. It should serve as a very useful source of reference on the best current practice. The treatment has endeavored to emphasize principles, and to illustrate them with practical cases.

By reason of its technical thoroughness, the Handbook will assist the office executive in the more satisfactory solution of his specific problems. Since it treats organization as well as techniques of operation it should be of prime value in training supervisors and juniors. The book should be helpful, too, in acquainting the office manager with those areas of the field with which he has had little contact. And the same qualities make it adaptable as a text in colleges and universities offering courses in office management.

To all of these and to management in general, it should serve as a useful source of reference as to both practice and sound basic principles. In related fields where to some extent there may be overlapping or in which at least the closest kind of coordination is required, such as accounting, sales and purchasing, the executives in charge of these activities will also find this book very helpful. In the small concern whose office activities are organized as a part of operating functions, it will be an aid in the development of more efficient practice and will serve well as an aid in training new workers and supervisors.

In accepting the responsibility for the preparation of a book to meet these new needs it was recognized that it would be necessary to refine the experience of office executives and supervisors in large and small concerns, representing all types of business. Thus instead of delegating the preparation of such a volume to a single individual, the National Office Management Association solicited the aid of more than a hundred capable and experienced executives and technicians, each a specialist in one or more phases of the broad subject.

Work on the Handbook commenced in 1944 under the leadership of Mr. E. H. Connaroe, then President of the Association. He has since continued to lend his assistance and guidance. The Editor gratefully acknowledges the inspiration and aid received from this source. He should like to mention the names of many others who lent their aid and encouragement, but space to catalog such a long list is not available. However, the Editor is so deeply indebted to Mr. W. H. Evans, Secretary-Treasurer of N.O.M.A., and to his staff, to Messrs. Arthur Gagliotti, Niles Barry, and W. H. Hansen, and to Misses Louise Kummer and Ann Babinowich that he must at least thank them for their vitally important assistance. Many of the men whose names appear in the list of contributors also supplied illustrations, read manuscripts and in many other ways aided in the preparation of this book.

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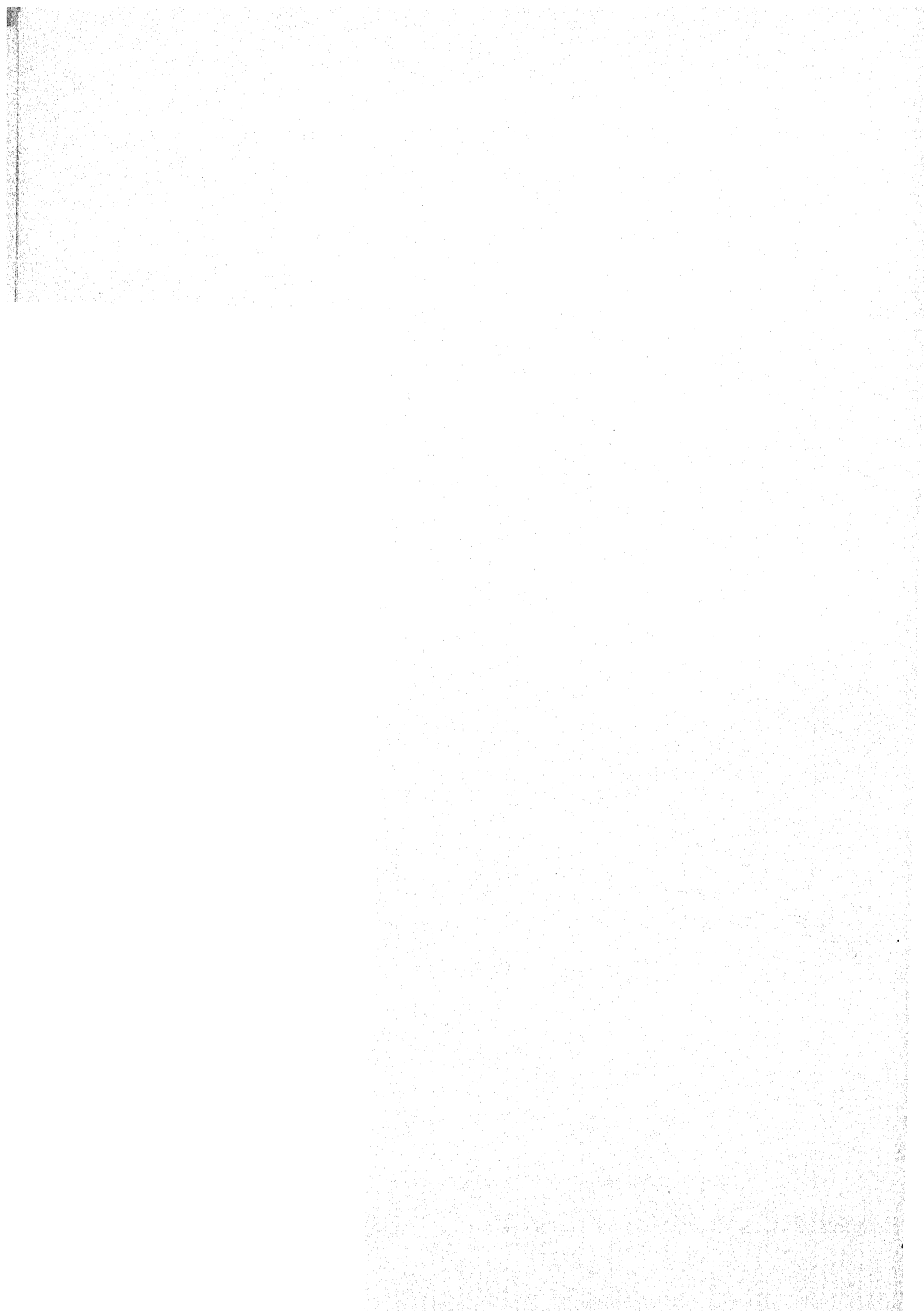
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PART I

THE ORGANIZATION ELEMENT

CHAPTER 1

SCOPE AND DUTIES OF THE OFFICE AND ITS MANAGER

Field of Office Management

Importance of the Work of the Office.—The importance of accurate, timely, inclusive, and dependable records in the operation and control of modern business is being rapidly recognized. Thus it is that executives are becoming more and more impatient with the failure of those engaged in the preparation of basic and supplementary records for their inability to supply the records services required. They are insistent that the organization and operation of these activities be overhauled and streamlined to meet modern needs. While there is merit to their demands, it must not be overlooked that general and administrative management must assume a large share of the responsibility for the past and present failures of the record-making activities to meet their needs fully and promptly.

These failures have arisen as a result of several conditions. First and perhaps of greatest importance, management has lacked proper appreciation of the value of records, and because of this has been unwilling to accept recommendations for improvement, furnish funds for equipment, supplies, and machinery, support programs and policies designed to provide more and better service, and in various other ways lend its support, guidance, and sympathy to the records agencies we call the *Office*. In the second place, management has not considered it sufficiently important to define clearly the field of office management, and endow it with necessary authority to enable it to assume the responsibilities which it has been held accountable for. Nor has management thought it worth while to assign proper rank and place in the structure to the office executive and the organization unit over which he presides. The unavoidable consequences to management and business for these failures to accept a sound point of view, and to act with definiteness and dispatch to remove obvious sources of weakness are lost time, wasted energy, and squandered money. In the third place, it can be said that the existence of the two reasons above described has seriously affected the opportunities of many concerns to recruit and retain suitable office executives, supervisors, and workers. This situation has prevented the development of efficient office practices and methods and to some extent has made uneconomical organization adjustments necessary. Many other points could be raised, but they would only add to what is generally accepted as conclusive evidence of past

mistakes and the need for their correction. It is believed that a clear statement of the functions, duties, and responsibilities of office management and the development of a suitable and efficient organizational unit for their conduct and control will be a long step forward. This will provide the means of rendering effectively to all the phases of business activity the myriad of highly specialized and daily used services required, which in turn will free for tasks of greater importance those who now consume their own time in providing these services for themselves.

What is the field of office management? The question is simple and direct and calls for a direct answer. But to reply, simply, that the field embraces the direction and coordination of every activity related to, or affecting, office operation, is not enough. Obviously, there is need for preliminary orientation and the establishment of perspective which cannot be supplied by one sentence or yet by the entire volume. These first few paragraphs, then, are designed as a background against which to project constructive thinking on the various aspects of the field of office management.

Ancient Offices.—Those who are engaged in business and industry today are inclined to believe that the office is a phenomenon peculiar to the 20th century. Yet it is entirely within the realm of possibility that certain of the ancient governments, more especially the Assyrian, Babylonian, and Egyptian, required the services of many hundreds, and perhaps even thousands, of office workers in the never-ending process of tax collection. Taxes were not levied and paid in cash, but in services and commodities. In business, too, barter was the order of the day. Consider the plight of the ancient whose assignment was that of developing office routines for recording, on clay tablets, such transactions as the exchange of CXIV bushels of oats for LXVIII days of labor and II milk cows. However, large as some ancient offices may have been, it is probably true that today's office had no real counterpart in ancient civilization. Modern office appliances alone have rendered comparison impossible. The differences resulting from the use of improved media of exchange, banking and credit facilities, the now almost universal use of arabic numerals, and refined accounting procedures have wrought sweeping changes.

The Offices of the Middle Ages.—Without pausing to comment on changes during the rise and fall of the Greek and Roman empires, or during the period of the Dark Ages, let us consider next some significant developments of the Renaissance. Here, in the Italian city-states, we find the first faint beginnings of the modern corporation, the first banks and the first insurance companies. Double-entry bookkeeping was introduced just prior to 1500. Italy was the center of the world's trade and the leader in business activity. It is hardly necessary to observe that these developments gave rise to the office or, as the English later termed it, the "counting house."

Modern Offices.—The application of power to machinery, one of the outcomes of the Industrial Revolution, first appeared in North America during the 19th century. The use of steam power led to a concentration of personnel and equipment in factories and shops. Many businesses grew from the single entrepreneurial type to the tremendously large corporations of today. These establishments can operate successfully only as long as their office records provide the facts upon which to base executive judgment. With ever-broadening markets, with subsidiaries and branches established in many principal cities, remote control is no longer merely a possibility of modern business; it is a necessity. The effective exercise of remote control is predicated upon an efficient office organization.

Then, too, increasing governmental regulation and the ingenious methods of taxation devised by governmental units necessitate new forms of record-keeping, whether the office be large or small.

But the growth of business units and the increasing degree of regulation are only two of the many factors which have served to project the office and office management into the forefront of business activity. Competitive conditions have made timely sales and credit statistics of vital importance. Production data, inventory controls, incentives, profit-sharing and pension plans, group insurance, credit unions, savings programs, training programs, and a dozen other comparatively new developments center about the office. New requirements necessitate more clerical employees—there being at least 5,000,000 such workers today—more equipment and, above all, a greater skill in management.

It is understandable, therefore, that the development of the field of office management during recent years should have been rapid, and the application of factory production methods to office operation inevitable. It is just as obvious that the end is not yet in sight, and that the many factors already enumerated, as well as others, will make specialized management necessary in all except the smallest institutions. In some businesses (such as banking and insurance) the proportion of office workers to the total number of employees is unusually large. Financial institutions, therefore, already place great emphasis upon office management. In the future, it is probable that the office will become an even more important factor in the life of all enterprise and that office management will assume an even greater significance. Office management should, therefore, eventually emerge as a major management function.

Scientific Office Management.—The need for the best in management techniques has given rise to the expression "scientific management." Within reasonable limits management can be scientific, but it will probably be many decades before, either in the factory or in the office, it becomes truly scientific. As long as it is impossible to measure accurately individual differences

and to equalize human behavior, so long will it be impossible to develop completely scientific techniques of office management. It is possible, of course, that management can be reduced to a science when it is applied to the inanimate objects which facilitate office operations, such as machinery, equipment and furnishings, and forms. The limiting factor, therefore, is the human element.

Divisions of Office Activity.—A simple list of all the functions of the modern office would be most impressive but would probably serve no practical purpose. However, the various functions of the office may be grouped into two general classifications: (1) operating services, (2) control services.

OPERATING SERVICES.—Every enterprise has need of a hundred and one supplementary aids, such as reception, information, telephone, messenger, typing, filing, billing, and computing, which are distinctly office service functions. In a sense, personnel selection, training, general well-being, and even the purchase of equipment, materials, forms, and supplies may be considered office service functions. At times, the maintenance of buildings and grounds; the layout of offices and factories; lighting—whether natural or artificial—ventilation, heating, acoustics, and sanitation are also included in this category, particularly when the office is not connected with an industrial plant. Provision for safeguarding property by protective devices and through various forms of insurance might likewise be considered as a service function. More recently, research and library duties have become important phases of office activity.

CONTROL SERVICES.—A second and more recently recognized set of services rendered by the office is designed to assist responsible company officials in exercising proper control. The control so essential to modern business is based upon records and statistical analyses. Most, but not all, of this work can be included under the term, "accounting." General accounting, as well as the more specialized spheres of cost work, credits and collections, sales analyses, and traffic, is part of the control mechanism of the business. Planning, scheduling, methods analysis, and measured production, as they are applied to the factory, are also elements of control necessitating office services.

Thus, through its many activities, the office is designed to facilitate and accelerate the work of the entire enterprise. It assists in planning and coordinating, and aids in measuring performance. Through it, administrative and production costs may be controlled and sales effort directed to best advantage.

RELATIONSHIP OF OPERATING AND CONTROL SERVICES.—It must be understood, of course, that office services, whether grouped under operating or control, do not always bear the same relationship one to another. Every

business has its own peculiar requirements, and no general outline of office functions can assign any degree of true relative importance to the varying responsibilities discharged by the office organization. Furthermore, activities of other departments, such as personnel, often cut directly across the field. In large establishments, certain features of management are delegated to departments created for the purpose of providing technical handling for specialized problems. Office services units may be centralized, partially centralized, or decentralized. Regardless of the degree of centralization, however, office services, whether operating or control, should be rendered by specialists. Modern society, with its mass production, is an economy of specialization. It is not only logical but necessary that these various business services be organized and directed by specialists.

Then, too, the modern office utilizes such management techniques as scheduling and measured production in the control of its own functions. Basically, control is obtained through the establishment of standards. These, in turn, are obtained by an analysis of records. Thus, each office must determine for itself the records which are most useful in the satisfactory discharge of its responsibilities. Important records must be preserved and made readily accessible.

Changing Attitudes.—The office was once considered as nothing more than the focal point of internal and external communication, capable only of dispatching a few letters upon occasion and of preparing records of no practical value. It seems hardly necessary to point out the limitations thus imposed. Under such a concept, the vitality of the office was impaired. Initiative became stagnant and the lot of the office worker was not likely to be a happy one. However, under the new concept of office management, the possibilities of waste and mismanagement in office operation are now fully recognized, as are the possibilities of direction and control. The potentialities of the office must be carefully studied.

The present tendency, fortunately, is to view the office as a living, vital organism. It lives as a centralized, service-rendering unit. It is accepted as a full partner in the productive efforts of modern business. Without the office, factory wheels do not turn and the sale of goods or services is not possible.

Functions and Responsibilities of the Office Manager

Variations in the Manager's Functions.—That phase of business activity known as office management has not yet attained a professional status. However, it has developed to a point where certain functions, responsibilities, and relationships are recognized as belonging to the office manager. Since these duties tend to differ from office to office and from manager to manager, it seems wise to discuss them entirely apart from any specific office situation.

A broader perspective is thus obtained and a fuller appreciation is gained of the office manager's position within a corporation. Likewise, a review of these broader relationships and responsibilities affords a backdrop against which to portray the problems and discussions in the succeeding chapters of this book.

Functions Within the Company.—The function of the office manager, as the name implies, is to operate the office with optimum efficiency; that is, to be directly responsible for the coordinating and efficient functioning of the service groups which usually include the following units: mailing, filing, office methods, stenographic, order, office personnel, reproduction, telephone and telegraph, office accounting, general service, and office equipment.

In recent years, three aspects of this office management function have developed: the need for increased office efficiency, rendering service to operating departments, and giving service to customers.

INCREASING OFFICE EFFICIENCY.—The first aspect has to do with the office manager's ability to increase profits through greater efficiency and lower office operational cost. In the past, the attention of top management was focused largely on cost control in relation to manufacturing operations. Office clerical work was simply accepted as one of the operations about which very little could be done. Recent business trends, however, have forced top management scientifically to investigate office operations with the same completeness with which it previously investigated plant operations. In the first place, the constant trend toward higher wages necessitated a closer scrutiny of all costs with a view toward reductions. Second, the development during war years of more governmental controls, more detailed tax reports, more compensation and labor regulations all placed an additional burden upon the office organization. As a result, paper work had to be closely controlled in order to continue efficient operation.

To meet these problems, new tools and techniques have been developed. Work standards, method and procedure analyses, time studies, etc., have been applied to the office organization, and they have resulted in a better measurement and closer scrutiny of office clerical costs.

All these factors have undoubtedly made top management more cognizant of the contributions that clerical and office operations can and should make to the smooth operation and profit possibilities of the business. The importance of this aspect of the office function not only has grown but also continues to increase directly as wages rise and as prices are held down either by competition or through governmental regulations.

RENDERING SERVICE TO OTHER DEPARTMENTS.—A second aspect of the office manager's function is that of rendering service to the operating departments of the business. This phase of the office manager's work is the best

known and most often associated with office management. While this is by no means one of the lesser aspects of the office management function, neither is it the most important. It is unfortunate that too frequently, in the minds of many, the office manager is associated solely with this service function, since it has the effect of viewing the office manager and his function through the wrong end of the telescope.

GIVING SERVICE TO CUSTOMERS.—A third aspect of the office manager's function is that of rendering service to the customers of the business. A great deal of the service which the customer is entitled to expect from a business comes directly or indirectly from personnel who report to the office manager or his assistants.

In an address to the American Management Association Conference, A. B. Parnall, Treasurer of The Osborn Manufacturing Company, Cleveland, Ohio, very clearly emphasized this point.¹

It is the prime responsibility of the office manager to see that his people realize that the prompt, efficient, courteous handling of customers' orders, follow-ups, debits, credits, invoices, etc., all influence customer relations. Many of these things have not been considered functions of the office manager, but if he is going to take his place as an important executive, he must begin by developing an overall concept of his business as it relates to the "business of business," which is serving customers. If he is going to allow himself to be considered a "penny pincher" interested only in saving a few pennies a year on pencils, he will never rise to the opportunities which his job and the information he has at his fingertips afford him. He must widen his horizons. Obviously, he must organize the office in an efficient and workmanlike manner, and yet do it on a basis which constructively builds customer good-will.

Basic Responsibilities.—Broadly, the basic responsibilities of the office manager may be grouped into three quite distinct categories: executive planning responsibility, administrative responsibility, and staff responsibility.

EXECUTIVE PLANNING RESPONSIBILITY.—This responsibility concerns itself with the "blueprint stage" of the office manager's activity. In this respect his work does not differ from the work of any other executive who is responsible for the creation, establishment, and control of any organizational undertaking.

In his work as line supervisor of some departments and staff coordinator of others, the office manager's planning is somewhat of a Dr. Jekyll and Mr. Hyde variety. His first concern, of course, is developing workable plans which will increase office efficiency. To accomplish this purpose he must give consideration to such factors as:

1. Office layout and flow of work
2. Allocation of office space

¹ A. B. Parnall, "The Office and Customer Relations," *Office Management Series Bulletin*, No. 101, American Management Association, New York, 1943.

3. Location and placement of office furniture
4. Health conditions within the office
5. Evaluation of office work
6. Standardization of salaries and rate ranges
7. Development of job evaluation
8. Utilization of personnel
9. Development of training programs
10. Leveling of work and elimination of peak loads
11. Analyses of methods and procedures

Before any action can be taken on these and many other items, careful planning must be done well in advance.

Much broader is the second phase of the office manager's planning responsibility which concerns itself with the over-all plans and programs of top management. This aspect of office management planning is often overlooked and sometimes top management fails to invite the office executive to sit in on the formulation of over-all company plans. Such failure is usually costly since the execution of these broad management plans necessarily reflects itself in costs throughout the business, including the office organization.

Thus, it is incumbent on the office manager to shape his plans and programs to conform with those of top management, and to gear his thinking to that of the other operational executives. To do this, he must remove the pencil from behind his ear and throw off the green eyeshade. He must raise his sights from the consideration of pencils, pens, and paper clips to a thorough consciousness and understanding of sales, costs, profits, and human relationships. The office manager who complains because the work of his service divisions is increasing because of the fact that his company, through planned sales effort, has increased its sales, is nearsighted in his viewpoint. He is forgetting that the plane on which office management and top management meet is the level of over-all company planning.

ADMINISTRATIVE RESPONSIBILITY.—The second basic responsibility of the office manager is the administration of his own plans or those of his superior. As such, this responsibility takes two forms—organization and control.

The organizational phase of the work, of course, is devoted to organizing and assembling the equipment and personnel necessary to perform any office operation. It presupposes the establishment of systems, methods, and procedures into which personnel and equipment can be fitted harmoniously, thereby forming an office production unit. It likewise assumes the existence of a physical organization having clear-cut lines of authority and carefully delineated responsibilities. The importance of having an efficient organization cannot be stressed too strongly, as it is the means through which instruc-

tions are transmitted to the various echelons of authority under the office manager's supervision. This development of supervisory personnel is accomplished in two ways: first, by example—through personally exemplifying leadership qualities which in turn bring out the best in subordinates; second, through training—the office manager does not function as such until he recognizes the importance of those who work for him as supervisors; that is, until he learns the art of getting things done through others.

The control phase of administration is accomplished by a more direct method. In many offices, it is gained through the establishment of work standards or some other form of work measurement, and concerns itself with these questions:

What should the service cost?

What should it cost to write a letter?

What should it cost to reproduce a form?

What should our budget be for the Mailing Section?

The answers to these questions are arrived at through careful analysis of the systems, methods, and procedures used, through charting of the operations, and through workload leveling from department to department. Such practices are currently being carried on in many offices by an office methods unit.

The office manager's control responsibilities, however, do not stop with the control of systems and procedures as such. They also extend to the control of personnel and salaries. Control of personnel is sometimes exercised through the office manager, but may be exercised through an office personnel director reporting to the office manager. In any event, development of techniques to select high type of personnel and to determine the positions for which they are best qualified is a definite part of this phase of control.

Responsibilities in this realm extend into the field of pre-employment testing, aptitude testing, training, placement, follow-up, supervisory training, and promotional testing. The National Office Management Association, for example, has developed a battery of clerical aptitude tests which serve to indicate an individual's ability to fulfill the requirements of a particular position. The use of these and other tools by the office manager enables him to fulfill his responsibility for selecting qualified people and for their proper placement within the company. The maintenance of adequate personnel records and the compilation of individual merit ratings, together with a periodic personal check on individual accomplishments, are all means through which the office manager maintains control of personnel.

Coupled with the control of personnel, and almost inseparable from it, is the control of salaries. The office manager's responsibility for salary control is probably best fulfilled through the use of job evaluation. While job evalu-

ation plans vary from company to company, they generally include certain elements which afford the office manager several methods of control. The job description sheet gives the office manager a review of the contents of the job and enables him to arrive at some measurement of the work which actually is performed. The point rating of, or factor comparison between, various office jobs affords the office manager information on, and a basis of control over, the various levels of work, and gives him the necessary data with which to establish lines of promotion within the office organization. Checking of the salaries paid against the classified job ratings indicates a relationship from which a salary schedule may be prepared to correct out-of-line salaries, thus giving the office manager control over rate ranges and salaries paid within the office organization. He should make use of such further tools as community surveys or intra-industry comparisons in refining the measures which he is using to standardize and control salaries within the office.

All these techniques and measures are the instruments of control used by the office manager to make his operations more effective and more efficient.

STAFF RESPONSIBILITY.—The third major responsibility of the office manager is his staff responsibility. It is equal in importance to the others, but much more difficult to define. A survey in the field indicates that the staff responsibilities of office managers extend over almost every activity and phase of a company's operations from selling and production to research and development. However, there appears to be a certain common denominator of staff responsibility which occurs most frequently in most office situations.

The first and primary staff responsibility concerns over-all office policies. Such policies are either formulated and approved by the office manager or formulated by the office manager and approved by top management. These policies, or the rules and practices which grow out of them, generally deal with hours of work, vacations, attendance, letter writing, absenteeism, method and manner of paying, grievances, layout, and flow of work, etc. The staff control exercised by the office manager in the carrying out of these policies and practices usually reaches into all branches of the corporation where office work is performed. Even though the office manager does not have line authority over many of the departments affected by a particular policy, he nevertheless is responsible for definite enforcement of the policy as approved. Many firms, for example, have certain letter writing practices which were formulated and developed under the supervision of the office manager. Once these letter writing practices have been approved by top management, it is the responsibility of the office manager, by control through the central stenographic pool or by other controls, to make sure that these practices are adhered to by all operating departments.

Likewise, the control of office budgets, costs, personnel, and office salaries all represent staff functions usually exercised by the office manager, in so far as these functions cut across the established organizational lines and reach into the other operating departments. Only through the exercise of centralized staff control by the office manager can uniformity of office operations be attained throughout all departments where office work is performed. The staff responsibilities of the office manager are by far his most interesting and broadening responsibilities. Notwithstanding all the work and development which has taken place in office management in recent years, there still remain many unexplored regions in which substantial development and progress can be made through extension of the office manager's staff control of operations.

A further staff responsibility of the office manager is that of assisting the treasurer, secretary, and controller in carrying out certain of their staff functions. He is also expected to supply these and other operating executives with seasoned personnel who have been prepared to assume greater responsibilities in the organization.

Another staff responsibility, and one which is exceedingly important for the proper development of office techniques and routines, is the office manager's responsibility for cooperating with and assisting in certain office research projects. In recent years, considerable research has been made by the Research Committee of the National Office Management Association and by many schools and universities into various problems of office management. The success of this research has been due largely to the cooperation secured from office executives throughout the country. While most of them do not have time to carry on individual research projects, their contributions of factual data to the common pool of knowledge have greatly furthered progress in the field of office management. For this reason participation and cooperation in various research projects is a very definite staff responsibility of all office managers.

The staff responsibilities of the office manager taken as a whole place him broadly in the position of a coordinator; and proper coordination is undoubtedly the key to the success of any complex office management activity.

The Office Manager's Relationships.—The relationships of an office manager, based on the varied duties and responsibilities already mentioned, divide roughly into three categories—intradepartmental, interdepartmental, and intraprofessional. The degree to which these relationships are developed and the degree to which effective "selling" of ideas and methods is employed determine in large part the ability with which the fundamental functions and responsibilities of office management can be carried out.

Intradepartmental relationships, of course, involve the human relationships and the supervisory relationships of the manager within his own de-

partment and with his own supervisors and personnel. The fostering and developing of these relationships provide the matrix for a sound, efficient office organizational unit.

The interdepartmental relationships, on the other hand, include the relationships between the office manager's department and other departments in the organization, and between him and his associates and superiors in top management. The success of these relationships is premised upon a high degree of cooperation between the operating executives and the office manager. His "selling" ability and personality likewise affect the success of these relationships; for the office manager as a staff man and coordinator must be cooperative, convincing, and firm in the exercise of policy control. No other category of his activities so clearly delineates the difference between the office executive and the office chief clerk. Again, the degree of skill with which the office manager is able to handle these interdepartmental relationships determines in large part the degree of responsibility which top management will delegate to him as a functioning office executive.

In order to maintain a place in this rapidly developing era of business activity, the office manager must of necessity maintain close contact with professional associations, schools, universities, and office equipment manufacturers. In recent years, top management has come to recognize more and more the value of these types of contacts for all operating executives.

Opportunities Before the Office Manager.—There is no doubt that today the office manager stands on the threshold of a new era of great progress and accomplishment. His function, responsibilities, and relationships are better understood and more widely accepted. His opportunities for service to the company, its employees, customers, and stockholders are almost unlimited. His field, while not new, is still young and growing. Each year that passes adds one more mile to the road of progress toward a truly professional status. Before him lies a challenge—a challenge to stand shoulder to shoulder with other executives in his company and a challenge to develop and perfect the science of office management.

The Qualifications of an Office Manager

Planning and Control of Work.—Management, in general, has been defined as getting things done through the efforts of other people. Getting things done through the efforts of other people involves two fundamental principles of management:

1. Planning
2. Control

The planning function embraces the whole field of what humans are to accomplish. It pre-supposes a knowledge of the scope of duties together

with an establishment of the net results to be gained by human activity. Departmentalization, size of groups, functional assignments, all come within this primary planning function. Many companies devote the facilities of entire sections of their offices to planning alone, upon the theory that, without the proper planning, activities tend to dissipate energy profitlessly.

The control function concerns itself with the use of various media to impel people to perform the plan which has been drawn. The two principal control media are

1. Organization structure
2. Supervision

The organization structure should be simple and understandable, so that all may comprehend the interrelationship between individuals and organization units. Organizational relationships should be so drawn that there is no room for misunderstanding as to function or duty. Once established, it goes without saying that the organization should have the support of management from the top down; it should not, however, be frozen into immovable or unchangeable lines.

Supervision is management's means of closing the gap between desired performance and actual performance. As long as humans are fallible, supervision will be a valuable device; when the millennium comes, perhaps it will be possible to outline a plan and rely upon its successful operation without the device of supervision.

A simple statement of the primary executive function, applicable just as much to office executive work as to production work, includes three major premises, as follows:

1. To determine what people should accomplish, including over-all objectives, as well as detailed functional assignments, by departments and by individuals.
2. To check periodically on how well people are accomplishing what they should do.
3. To develop methods by which people will perform more effectively the tasks which have been set for them.

Enumeration of these three tasks leads to the simple truth that management is the development of people and not of things. To paraphrase, if one takes care of the people properly, the things will take care of themselves. Those who would rather do a task themselves are admitting that they are unable to manage.

In the past, many individuals charged with the responsibility of managing in the office have been more or less inclined to follow the advice contained in the old maxim that if one wishes work to be done well, one needs to do it himself—it is conscientious, though poor, management of this sort which has

made it reasonable to say that if a qualified office manager had been on the job, much better results would have been obtained.

Factors in the Control of Work.—Many concerns realize fully how bad ineffective and inefficient office management can be. Top management has come to understand that a qualified office manager should be thoroughly informed about and experienced in the application of the principles and practices of modern scientific office management, and should use them in his work just as the production manager uses production management principles in his particular work. Top management may reasonably and fairly expect that the office manager should have more than a passing acquaintance with all of the following factors in the management picture :

PERSONNEL ADMINISTRATION AND PLANNING.—Since management is the development of people and not of things, one of the cardinal points of the office manager's bible is that he should know what Jane and Johnny Doe think about their work. He should interest himself in the people with whom he works, find out what makes them happy, and, through the application of the latest developments in the science of personnel administration, he should let them know that he is their friend. Aptitude testing, attitude surveys, all the progressive devices for guiding people in productive endeavor should be within the knowledge of the qualified office manager.

GENERAL OFFICE SERVICES AND FUNCTIONS.—So often the office manager is merely an office service manager ; office services, indeed, are the concern of the office manager, but, concerned though he may be with office services, those services are but a fraction of his work of keeping well oiled the operating mechanism of the office. The files, the communications, heating, lighting, and ventilating, all are important, but they are not the qualified office manager's whole responsibility.

PLANNING, CONTROL, AND ORGANIZATION PRINCIPLES.—Since, in many companies, an entire department is devoted to the planning function, it is readily seen that planning itself constitutes a major responsibility of the qualified office manager. Over-all objectives, work assignments, supervisory devices, departmental structure, and organization, all of these occupy an important place in his work and represent the more important long range portions of his assignments.

WORK SIMPLIFICATION.—"Work Simplification," according to Alan Mogensen, "is a *philosophy*." It embraces not only the dreaming up of the little gadgets to save effort on a specific job, but also the background thinking as to whether the job is necessary at all. So often the maintenance of a record or the production of a report which was originally maintained or produced for a one-time purpose goes on and on—the application of Kipling's

six serving men has often helped the office manager to amputate the unnecessary limbs which tend to sprout on the tree of office effort.

STANDARDIZATION.—It goes without saying that, in the office manager's individual company, he will find that the economies possible through standardizing operations and equipment and building factors will more than pay for the expense incurred in providing standards.

METHODS AND SYSTEMS.—The one best way of doing the job is what the qualified office manager should strive to select. Just because Grandfather did it that way is no reason why we should continue to do it that way forever; having stood the test of time may be just one more reason why Grandfather's way is not the best way to do it. Someone once said that the only constant is change; and perhaps nowhere can constructive changes be applied more profitably than in the methods and systems of doing the office work.

ENVIRONMENT.—Lighting, heating, ventilating, furniture, and equipment are the last, but not the least important, subjects with which the office manager should be familiar. The latest in cold light, air conditioning, pressure air circulating systems, and the control of noise in the office will play a major part in making it possible to do more work with less effort.

After World War II manufacturers introduced to the public new styles in desks, chairs, and new and more efficient equipment for the office. The use of color, as it related to the external appearance of desks and equipment, was introduced by many furniture makers who had made a study of eye and body fatigue. Keeping abreast of developments in this rapidly changing field alone will require a great deal of the qualified office manager's time.

Recognition of Qualified Office Manager.—As effective office management continues to demand and embrace an ever-widening sphere of specialized knowledge, and as its subject matter and methods lend themselves increasingly to organized study, it is no longer feasible, or even possible, to depend upon a hit and miss approach to its advancement. There is urgent need for a definition of the equipment in terms of training, experience, and personal qualifications, which the office manager should bring to his work.

While a great deal has been said about the office manager and the devotion with which he should apply himself to the many branches of his management task, it is not to be thought that the members of top management will recognize the sterling work of the qualified office manager and leap to seize the opportunity of making him part of the managerial organization. This desirable picture is far from the fact, which fact is that the office manager must "sell" himself and the job he can do to top management.

CHAPTER 2

OFFICE ORGANIZATION FOR OPERATION AND CONTROL

Organization of Office Functions

Organization Defined.—Organization has been defined in a number of ways. From the standpoint of its practical application and interest to the office executive, organization can be regarded as the relationship between individuals, groups, or functions in any common undertaking. If those relationships are carefully planned, logically assigned, and intelligently maintained, good organization results. This, in turn, makes for efficient management. It should be remembered, however, that good organization and good management are not necessarily synonymous. A well-organized company or department may still be poorly managed in other respects. Organization is just one of the tools employed by management to accomplish its objectives. It is an important one, however, for without it management would be seriously handicapped.

Organization—and the Office Manager.—The office executive is interested in organization matters from two major standpoints:

1. As a company executive and a member of the administrative group, he is concerned with his place in the administrative structure and his relationship to his fellow executives. Since every phase of the operations of the business involves records or paper work to some extent, the office manager is likely to have relationships with most, if not all, other company executives and those relationships should be clearly established.
2. In so far as he is directly responsible for the conduct of the office operations, he must organize the office management function and personally establish the relationships to be maintained within that operating group.

From both these angles, it is important that the office executive understand the principles and elements of good organization and apply this knowledge.

PLACE OF THE OFFICE EXECUTIVE IN ADMINISTRATIVE ORGANIZATION.—Although the decision as to his place in the administrative organization does not rest with the office executive himself, it is important that he have a definite understanding of his position in this respect. If he is to perform

his function satisfactorily he should have clearly in mind his relationship to those executives (1) on the levels above him, (2) on the same executive level, and (3) on the levels below him. There is no single pattern or organization plan that applies. The situation will differ in every company.

A major influencing factor, of course, is the extent to which office management is recognized as an integrated function and the degree to which office activities are centralized in one executive. There is a considerable variation of practice on this point but as far as a trend is discernible it would seem to be in the direction of a centralized office management function. In some cases the office manager may have line authority over all clerical operations throughout the company no matter where performed; in others, he may be in the position of a staff adviser or specialist; in still others he is concerned only with the conduct of office service activities for the benefit of the operating departments.

This is not the place to discuss these different interpretations of the job. The important thing is that this basic consideration of the extent of the office manager's activities be clearly established and generally understood. Good organization does not require that any one or another of these arrangements be followed but rather that there be a decision on this point. Also it should be remembered that these arrangements and relationships are not necessarily fixed. Changes in general economic or business conditions or internal developments within a company may call for certain rearrangements or reassignments of executive relationships. For example, during the business depression of the '30's, certain major contractions were in order, while the conversion and reconversion of industry occasioned by the war was accompanied by extensive changes in the administrative organization which affected office management in many instances. Similarly, the assignment of office management functions and relationships within a company might change considerably as a result of a merger or consolidation.

Objectives of Good Organization.—A basic preliminary in any management undertaking is a clear-cut definition of the objective to be accomplished. The purpose or goal must be known. The objectives of organization are no different for the office management function than for any other phase of the undertaking, or for the company as a whole. They can be simply stated as follows:

1. To provide a clear-cut definition of responsibilities and relationships both as applied to individuals and to organizational units.
2. To avoid conflicts of authority and the overlapping of jurisdictions.
3. To provide for coordination so that all elements of the organization work as a team and not as a group of individualists or separate units.
4. To facilitate smooth-running operation and executive control.
5. To create an environment in which voluntary cooperation may thrive.

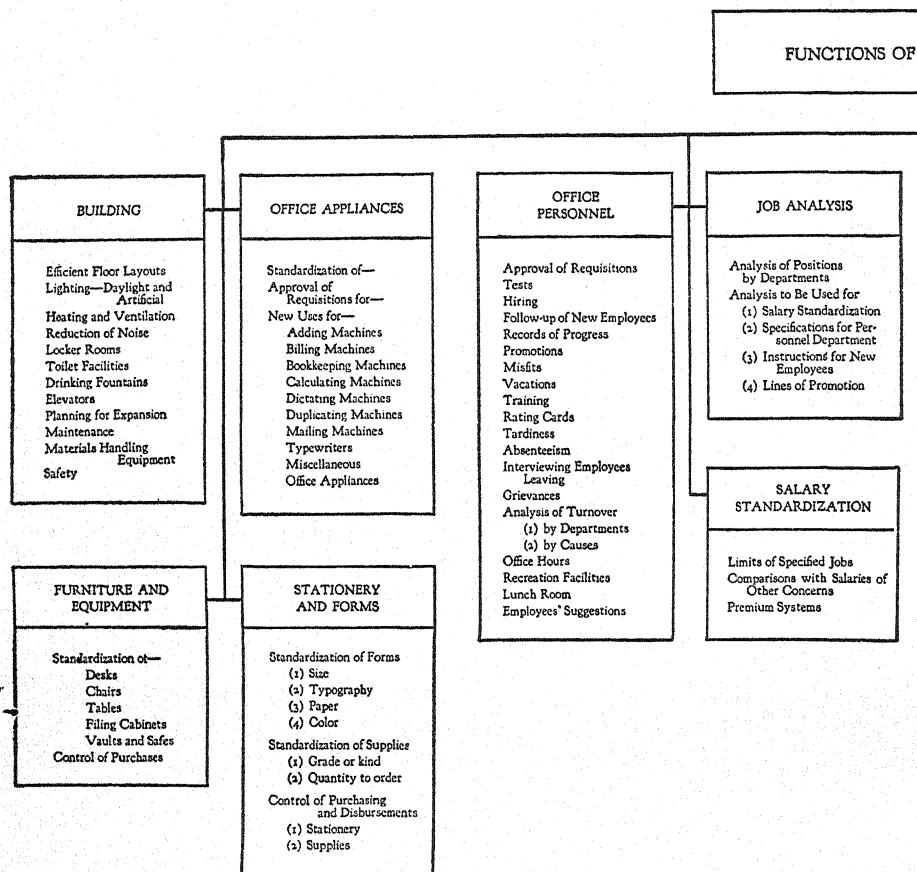


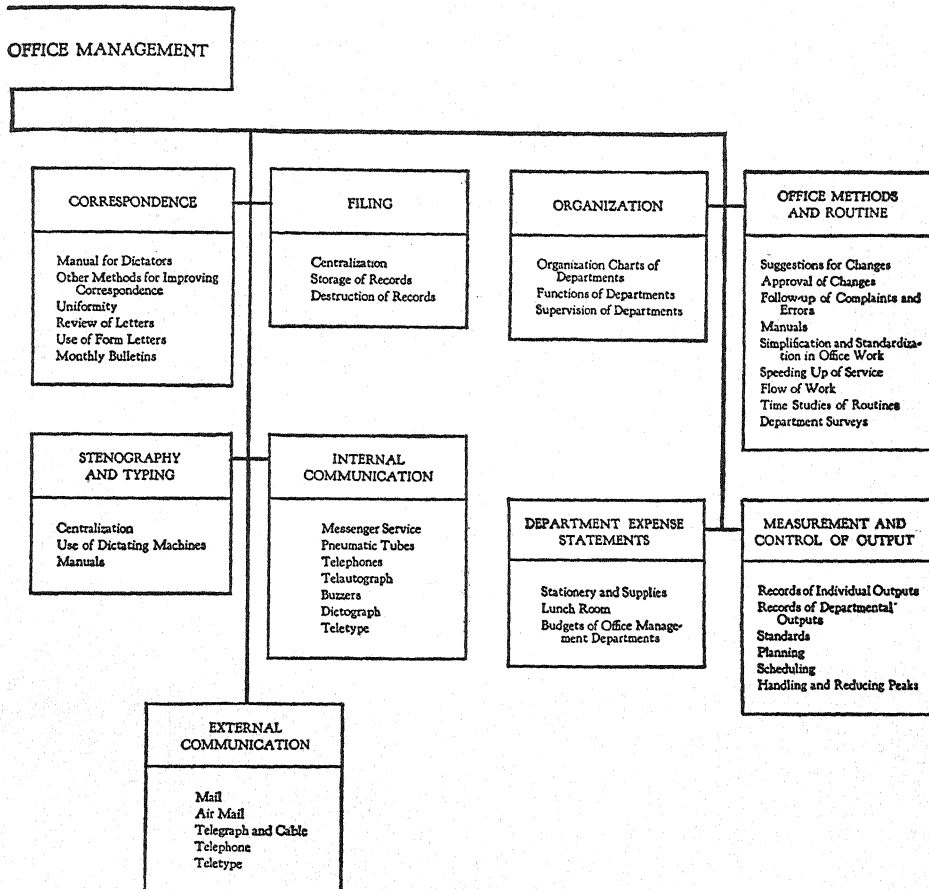
Figure 1. A Check List

How may these organizational objectives best be accomplished? There are two general approaches that have proved effective. They are:

1. Through the use of careful organization planning.
2. Through the application of sound organization principles.

These call for some further discussion.

Organization Planning.—No organization whether it be for the company as a whole or for one department or section of the company can be expected to be self-developing. If effective results are to be secured the setup of the organization must be planned in advance. The more carefully and deliberately this planning is done the better. There are too many instances in which functions have been allocated and executive assignments



of Office Functions

made on the basis of expediency or availability. Organization planning need not be done on an elaborate scale. It does not necessarily require the services of a specialized organization planning unit although there are several instances of companies that have set up such units as a regular staff activity. In the course of the transition from wartime to peacetime operations, a number of companies included a detailed survey of their organization setup as a part of their postwar planning program. In some instances a key executive with a company-wide viewpoint, such as an assistant controller or an assistant to the president, was disassociated from his regular duties for the time being and given this as a full-time assignment. Irrespective of how the job is assigned, effective organization planning involves the following steps: Analysis, evaluation, grouping of related functions, assignment of functions, and follow-up and review for improvement.

ANALYSIS.—This is the fact-finding step. A necessary preliminary is to identify all the various functions and activities for which provision must be made in the organization plan. An effective tool in this connection is the use of an all-inclusive check list. Compiled in terms of the office, such a list would include all the various functions and activities that might be considered a part of office operations. A sample of such a check list is reproduced in Figure 1.

EVALUATION.—With the composite list of approved office functions and activities, the next step is to evaluate them as to their relative importance. This involves a distinction between major and minor functions which has a direct bearing on their organization and assignment. The layout or assignment of the office space and the recording of the starting and stopping time of office workers are both office management functions but of contrasting importance.

GROUPING OF RELATED FUNCTIONS OR ACTIVITIES.—There are two phases of this operation, (a) those on a company-wide basis, e.g., concentration of functions under the office manager, and (b) those on a departmental basis, e.g., the grouping of activities of the various subgroups within the office department, such as training, stenographic, mail, methods, etc. These groupings should be as logical as possible.

ASSIGNMENT OF FUNCTIONS.—The next step is to assign the functions or groups of functions to the individuals available. This is a matter of executive placement. Decisions must be made, for example, as to whether the recruiting, selection, and placement of office workers shall be the function of the office manager or the personnel director. Similarly, it must be decided whether the record-keeping incidental to the operations of the sales department or the purchasing department shall be the responsibility of those operating executives or of the office manager. Sometimes, some sort of cooperative arrangement might be indicated. In the final analysis the major consideration is not so much how these activities are assigned but rather that they are definitely assigned and that the assignment is clearly understood by all concerned.

FOLLOW-UP AND REVIEW.—This last step is too often overlooked. Organizations are dynamic—not static. They are subject to constantly changing influences and conditions. Practice sometimes tends to vary from approved organization plans. Consequently organization planning is never a completed activity. There is need for constantly reviewing and restudying the organization with current conditions in mind. Generally speaking, at least an annual review and recheck is called for.

The result of organization planning as applied to the allocation of office management functions is illustrated in the organization chart of the office

management division of the Studebaker Corporation, South Bend, Indiana (Figure 2). This shows not only the variety of functions performed, but also the lines of authority.

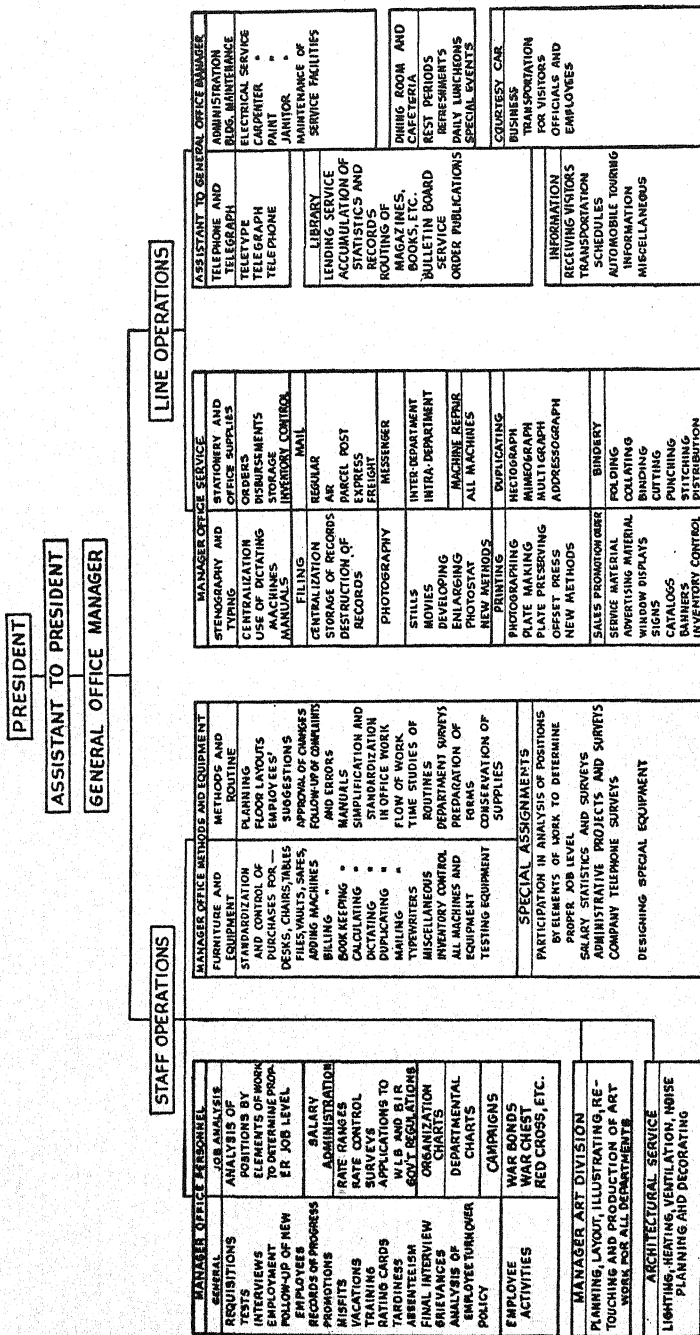
Organization Principles.—The second approach referred to is the application of sound organization principles. These principles apply just as well to the organization of the office as they do to the whole company or any other major unit or division. Different authorities in the management field tend to define and group these principles in different ways so that there is no standard set of principles that would be universally accepted as being all-inclusive. For the purpose of this discussion there are three basic principles of organization that are generally recognized and that deserve special consideration. The first concerns the nature of individual responsibility and jurisdiction; the second, delegation of authority; the third, having each person responsible to only one superior. These three principles are explained as follows.

DEFINING RESPONSIBILITIES AND JURISDICTIONS.—First, the responsibilities and jurisdictions of individuals and of organization units should be clearly defined and understood. The purpose of such definite distinctions, of course, is to reduce the possibilities of misunderstandings or misinterpretations and to avoid clashes and overlapping of jurisdictions. The purpose should be to anticipate potential points of conflict and clarify them in advance. Jurisdiction over branch office personnel as between head office and branch executives is an example of one such situation that may present such difficulties. Again, it might be emphasized that the important consideration is that the responsibility be definitely fixed, no matter where the function is assigned. It is important to avoid those twilight zones of jurisdiction which become the happy hunting grounds of overly ambitious and self-seeking executives.

One of the most practical methods of clarifying executive responsibilities is by putting the organization on paper. Organization charts and organization manuals have proved effective in this connection. The techniques of preparing such charts are covered elsewhere in this chapter. It need only be said at this point that the very process of charting the organization will require the fixing of individual responsibilities and a decision on controversial questions of jurisdiction.

An interesting approach that was employed by one company was to classify matters which might concern executive authorities as:

1. Those matters on which an executive had authority to render final decisions without the necessity of reference to or review by another.
2. Those matters on which an executive's decision required reference to or review by another.



3. Those matters on which an executive had no authority whatever to decide. By analyzing the authority of the individual executives involved according to this classification for each of the activities or functions of a given unit, questions of overlapping jurisdiction were brought to light and reconciled.

ASSIGNING AUTHORITY AND RESPONSIBILITY.—Secondly, authority should be delegated to individuals commensurate with the responsibility assigned. This principle is frequently violated in practice. Too often an executive is held responsible for certain performance and yet is not given sufficient authority to meet that responsibility. A simple example is the arbitrary requirement that the office manager produce certain vital reports or records by a certain date and yet not to give him the authority to employ the personnel or to authorize the overtime work necessary to accomplish that assignment. One well-managed company has the standing rule that any executive may overrule the decision of any subordinate at any time, but when this is done the subordinate is automatically relieved of any responsibility for the results of such action.

RESPONSIBILITY TO ONE SUPERIOR.—Thirdly, no individual should be responsible to more than one superior for any one function or activity. Failure to understand or to apply this principle is a frequent cause of conflict and misunderstanding. Everyone has the right to know definitely to whom he reports and from whom he should “take orders.” When established, these lines of authority and responsibility should be followed. The supervisor of a central transcription section, for example, may be subject to varying and conflicting demands for priority of service from several operating departments or executives. Although the objective will be to meet such demands as fully as possible, there must be one single source of appeal and final decision when needed.

Violation of this principle of single allegiance most frequently arises in connection with

1. The application of line and staff assignments
2. The relationship of head office and branch office personnel

The creation of so-called “staff” positions is becoming more common in many office organizations but there is frequent failure to clarify the limits of staff authority and relationships. Staff authority (as distinct from line authority) is of an advisory or facilitating nature based on specialized knowledge, experience, and ability. One company distinguishes between the two terms in this manner :

A staff executive is one who by experience or training has certain abilities which qualify him to advise others regarding the best way to perform

certain functions. He does not have authority to tell the people in the line organization that they must adopt methods or recommendations which he proposes, but is responsible for selling his ideas to those who should adopt them. A line executive does have authority to tell his subordinates what they must do and has the responsibility for seeing that his instructions are carried out.

Difficulties arise through a failure to conform to these definitions. The development of better office methods normally is a staff function. The payroll clerk may be in the position of receiving instructions from the methods engineer for a new payroll procedure which may be at variance with his instructions from his immediate supervisor. Such instructions should follow organization channels.

Similarly, members of a branch office organization may be doubtful as to whether their primary allegiance is to the branch manager or to the functional executive at headquarters. In many cases it has been possible to work out a practical allocation of functions whereby the respective jurisdictions are clearly defined. Again it should be stressed that it is not so important how these authorities are divided so long as each individual affected clearly understands the arrangement.

ADDITIONAL PRINCIPLES OF ORGANIZATION.—The three principles discussed do not constitute the only principles involved in good organization. They do, however, represent three of the most important from the standpoint of the office and are among those most frequently overlooked or misunderstood. A more complete compilation of principles is presented in the "Ten Commandments of Good Organization" reproduced in Figure 3. These were compiled by the late M. C. Rorty of the International Telephone and Telegraph Company, and are reproduced through the courtesy of the American Management Association.

Other Organization Factors.—There are several other points that should be considered in connection with office organization matters. These include

1. Span of control and levels of authority
2. Degrees of centralization
3. The use of committees

SPAN OF CONTROL AND LEVELS OF AUTHORITY.—By span of control is meant the number of subordinates reporting to any one superior. There is no one answer or uniform practice on this point. Generally speaking, the number depends on the nature of the work or activities and the qualifications of the executive involved. Where the activities are largely of a routine or repetitive nature a wider span of control may be practicable than where there is considerable variety in the type of activities involved. Thus, it is

TEN COMMANDMENTS OF GOOD ORGANIZATION

There are two kinds of efficiency: one kind is only apparent and is produced in organizations through the exercise of mere discipline. This is but a simulation of the second, or true, efficiency which springs, as Woodrow Wilson said, from "the spontaneous cooperation of a free people." If you are a manager, no matter how great or small your responsibility, it is your job, in the final analysis, to create and develop this voluntary cooperation among the people whom you supervise. For, no matter how powerful a combination of money, machines, and materials a company may have, this is a dead and sterile thing without a team of *willing, thinking and articulate* people to guide it.

1. Definite and clean-cut responsibilities should be assigned to each executive.
2. Responsibility should always be coupled with corresponding authority.
3. No change should be made in the scope or responsibilities of a position without a definite understanding to that effect on the part of all persons concerned.
4. No executive or employee, occupying a single position in the organization, should be subject to definite orders from more than one source.
5. Orders should never be given to subordinates over the head of a responsible executive. Rather than do this the officer in question should be supplanted.
6. Criticisms of subordinates should, whenever possible, be made privately, and in no case should a subordinate be criticized in the presence of executives or employees of equal or lower rank.
7. No dispute or difference between executives or employees as to authority or responsibilities should be considered too trivial for prompt and careful adjudication.
8. Promotions, wage changes, and disciplinary action should always be approved by the executive immediately superior to the one directly responsible.
9. No executive or employee should ever be required, or expected, to be at the same time an assistant to, and critic of, another.
10. Any executive whose work is subject to regular inspection should, whenever practicable, be given the assistance and facilities necessary to enable him to maintain an independent check of the quality of his work.

(Courtesy American Management Association)

Figure 3. Ten Commandments of Good Organization

natural to see the span narrowing as the higher levels of authority and responsibility are reached. Moreover, some executives with broad interests and experiences are able to deal more successfully with a variety of situations than others who tend to become more involved in details. Common ratios, under conditions where complex operations are involved, are to have no more than twelve to fifteen workers report to one supervisor and, at the top levels, to have only five or six subexecutives report to a major executive.

Levels of authority refer to the relative rankings of executive and supervisory personnel. An accepted rule is that the number of such levels should be kept as small as possible and that the point of decision should be placed

as near as possible to the point of action. By minimizing the necessity for referring matters to higher authorities, performance is expedited.

DEGREE OF CENTRALIZATION.—Any discussion of a centralized versus a decentralized plan of organization must be in terms of specific functions or activities for it is unusual to find any single practice followed throughout. From the office manager's standpoint, the question is largely one of degree. To what extent should all clerical activities be centralized both as regards administration by a single executive and physical concentration? This question has special significance as it applies to the office services—stenographic, transcribing, filing, mail and messenger, duplicating, office methods, etc. Some companies have accomplished very marked economies and stepped up the efficiency of these services through the establishment of centralized units. On the other hand, under certain conditions, too high a degree of centralization may act as an actual deterrent to prompt action. A decision on this point must be made on the basis of a careful analysis of each situation. Usually it is wise to consider each type of office activity separately. It should be remembered, however, that physical centralization is not always indicated. It may be a matter of providing centralized supervision or control of physically scattered activities so as to secure uniformity of policy and procedure while not sacrificing the proximity of necessary records or services to using departments. The practicability of centralized or decentralized office services is discussed in other sections of this book. In general terms, however, the relative advantages and disadvantages normally associated with a centralized or decentralized form of organization may be summarized as follows:

Advantages of Centralization.

1. Facilitates the adoption and enforcement of uniform policies and the coordination of activities.
2. Promotes greater standardization and specialization with the attendant economies in operation and equipment.
3. Frequently results in a clear definition of the activities and responsibilities of a unit or individual because of the degree of specialization possible, thereby reducing the risk of duplication or overlapping of effort or of records.
4. May permit utilization of more highly qualified personnel, particularly in administrative capacities, because of the increased responsibilities resulting from concentration of functions.
5. Permits greater flexibility in the utilization of existing personnel and facilities, and in meeting fluctuating volumes of work.
6. Frequently permits the utilization of mechanical or cost-reducing devices that would not be justified under a decentralized setup.
7. Permits more rapid adjustment to changing economic conditions.

Advantages of Decentralization.

1. May tend to facilitate the development of executive ability and initiative on the part of a greater number of individuals within the organization.
2. Promotes a greater sense of responsibility for the all-round success of a unit or department on the part of the executives in charge.
3. Facilitates the accuracy and promptness of executive decisions where local executives are authorized to act, particularly if the organization is widely dispersed geographically.
4. May result in decisions based on more intimate contact with and more detailed knowledge of operating conditions in the department or locality than where authority is highly centralized. This also tends to provide greater prestige for subordinate executives.
5. Too great a centralization of records may mean that local managements are operating with insufficient information while the provision of additional records to meet this situation may mean duplication and excessive cost.
6. Differentials in salary scales may permit similar operations to be handled more economically in smaller communities under a decentralized setup.

Generally speaking, of course, the advantages cited for a centralized plan would be the disadvantages of a decentralized plan, and vice versa.

Use of Committees.—Although not universally favored, committees have been employed effectively in a number of companies for analyzing problems, making investigations, and submitting reports with recommendations for action. Where properly constituted, these committees provide a means of securing a wider variety of viewpoints, experiences, and interests on a given question than would be possible otherwise. They also serve as an effective coordinating device. Relatively few major decisions of a business affect only one division or section of the organization. Through a committee on which the affected divisions or functions are represented, these special interests can be properly presented and considered. Examples of application of this plan in the office are the establishment of a standardization committee for developing company standards for office forms, equipment and supplies, a record retention committee for determining the "period of keep" for various company records, a job evaluation committee for developing a salary schedule, and a suggestion committee for administering an employees' suggestion program. These may be standing committees that meet at regular intervals or special committees created to perform a definite job and then disbanded. Some committees serve as a medium for training or personnel development, as in the case of the so-called "Junior Board of

Directors" under the multiple management plan of organization. Usually, committees are advisory or investigative in character rather than administrative.

An objection sometimes raised to the use of committees is that they are cumbersome, indecisive, and wasteful of executive time. In many cases, however, these faults are due to weaknesses in the organization or conduct of the committee or to the inefficiency or inexperience of the chairman. One point that seems to have been given little consideration in this connection is the advantage of having the viewpoint of the office executive represented on any committee concerned with company-wide planning or policy-making. Almost every major decision that comes before such a committee will involve paper work or records to some extent, and consideration should be given to that phase of the problem in arriving at a decision. Some recognition of this point was demonstrated in the inclusion of office managers on the post-war planning committees of many progressive companies.

Organization Charting

Definition and Use of Charts.—The preceding portion of this book has set forth the principles and techniques to be observed in achieving good organization. Organization charts are basic tools which have been found useful in this process.

An organization chart has been aptly termed "a picture of the organization." The advantages of visual presentation over the written word have long been recognized. The organization chart seeks to apply these advantages by graphically portraying the organizational structure and relationships in a simple, easily comprehensible form. It has been said "if the organization chart does not simplify the presentation of the organizational data, it has failed to accomplish its mission successfully." This appears to be a logical criterion.

Generally, organization charts serve as aids in achieving all of the administrative and operating advantages which accrue from sound organization practices. Specifically, they assist in:

1. Obtaining a statement or picture of the existing organization.
2. Analyzing, refining, defining and modifying the existing organization, in terms of the principles delineated heretofore in this book.
3. Presenting the organization to those who should have a knowledge of it.
4. Establishing a continuing control over organizational growth and change.

Usually the charting of the organization constitutes the initial approach to a study of the organization problem. The procedure of setting down the

organization in graphic form frequently reveals desirable remedial measures ; and the process of preparing the chart often serves to inform the supervisors involved of many pertinent details of the organization.

Organizational Nomenclature.—Paradoxically, perhaps, while fairly definite principles of good organization have been established and recognized, the nomenclature of organization still lacks much in the way of universally accepted definitions. Most terms in the field have been loosely used, and definitions of such words as department, division, branch, unit, group, supervision, position, responsibility, manager, head, line, staff, functional, etc., are still largely the reflections of their applications in a given company, with great variations in interpretation among companies. Some authorities have ventured to coin and suggest definitions of these terms, but a general acceptance has not been indicated in the literature of management or in management practices. No doubt these efforts will eventually culminate in a glossary applicable to this field.

Chart Contents.—The initial step in developing an organization chart should consist of defining the purposes or uses the chart is to serve. This will, in turn, determine the kind of information to be collected and presented in the chart. The following items are by no means all-inclusive, but are representative of the items of information which charts may be designed to show :

1. Structure of the organization (delegation of authority)
2. Functions assigned to a subdivision (or subdivisions)
3. Positions within a subdivision
4. Incumbents of positions
5. Budgeted positions
6. Duties assigned to various positions
7. Salary rates
8. Personnel budgets or costs

Various combinations of these items may, of course, be included in one chart.

Master Charts and Unit Charts.—Complex composite charts attempting to present too much data are sometimes more confusing than helpful. A complex situation cannot be made simple by merely crowding all of the details into one chart.

In many cases, this difficulty can be overcome by the use of master charts and unit charts (sometimes called "subsidiary" charts). The master chart presents the major subdivisions of the organization. Unit charts each present the details of a given subdivision. These types of charts are particularly effective in charting large organizations.

Generally, the master chart should be drawn on one sheet, and each unit chart shown on a separate sheet. The number of charts required naturally

depends on the size and complexity of the organization. As many should be constructed as are required to show the complete picture in a clear, understandable, and easily legible fashion. Small organizations with simple structures may not, of course, require subsidiary charts. Very large companies may require a succession of breakdowns of the main organization into major divisions and successive further breakdowns into departments and then sections.

Responsibility for Chart Preparation.—Preferably one individual should be responsible for preparing the charts of a company, or for directing and coordinating their preparation in accordance with a definite pattern of development and presentation. He should be a member of the top management of the organization, or should report directly to such an individual. In a large organization, this function may, of course, be the responsibility of a staff unit. In some cases, the personnel department performs this function; in others, it is placed in the “methods,” “planning,” “industrial engineering,” or some similar unit. Practices vary rather widely among companies.

In any event, the accumulation of the data for the charts and the final determination as to what they will portray should be a process in which all of the supervisors of the departments covered by the chart actively participate.

ACCUMULATING THE DATA.—There are several possible methods of approach for collecting the data for the charts. Generally two techniques are employed. One consists of a series of personal interviews in which the analyst obtains the appropriate information from the supervisors of the departments or units involved. The other utilizes a form or questionnaire on which each supervisor records the pertinent data requested. Frequently a combination of these methods is desirable.

Usually the analyst begins with the highest level of supervision, progressing down through each level of the organization to the lowest level.

The exact information obtained will depend on the intended purposes and uses of the charts. It is better to obtain too much information than too little. Usually the inclusion of functions increases greatly the value of the chart, particularly in organizational analysis. The very process of describing functions may in itself result in valuable by-products by revealing organizational weaknesses. As a guide, it is generally advisable to include the names of individuals together with their job titles. The names can be eliminated, if so desired, in the final chart. The following questions are typical of those which may be asked of each supervisor:

1. What unit do you supervise?
2. Who is your supervisor?

3. Whom do you supervise?
 - (a) Job titles and salary classification of each subordinate position
 - (b) Number of employees for each job title
 - (c) Names of employees
4. What are the functions of your unit?
5. What are your duties?
6. On what committees do you serve? What are your duties on each one?
7. What are the subdivisions of your unit?
8. What functions are performed by each subdivision?
9. What duties are assigned to each of your subordinates?
10. What expansions or retractions in personnel of your unit do you anticipate within the near future?

When the analyst has received this information, he will possess what each supervisor believes to be the case in connection with his unit. He should review carefully all the data obtained and, where discrepancies occur, should take appropriate action to verify the accuracy of all statements by consulting with the supervisors concerned. In some instances, he may have to obtain administrative decisions to resolve conflicts, overlappings, misunderstandings, and other defects in the structure.

MECHANICS OF PREPARATION.—The process of resolving the data accumulated into chart form will depend upon the volume and complexity of the data. The utilization of master and unit charts will assist in simplifying this operation. Rectangular ruled paper is helpful in plotting the chart. If the lines are printed in non-photographic blue, they will not appear on any copies subsequently reproduced photographically. Cardboard or celluloid templates may also facilitate the drafting operation, particularly if there are many charts to be drawn.

The skeleton framework indicating the various levels of authority should be plotted in first. Sometimes the preparation of the chart can be facilitated by using separate blocks of paper or cards for each subdivision of the chart and shifting them about on the sheet until the best arrangement is achieved. In some instances, if the information on these blocks is typed or neatly lettered, the finished chart can be obtained merely by pasting the blocks on the chart sheet, and then drafting in the box outlines and flow lines with a ruling pen. Photostating or photolithographing may then be used for obtaining additional copies, depending on the quantity desired. If the copies are reduced in size, care should be taken to make certain that the type is easily legible.

Principles of Chart Design.—While organization charts are probably one of the most widely used administrative devices, the advantages of their

use in many instances have been diluted because of poor chart design which leads to misinterpretation rather than to clarification. All too frequently the chart designer fails to realize that the chart is prepared to be read by others, and consequently injects into it techniques of presentation which are clear to him, but are not equally so to those who use the chart. Many of the faults in charts have been due to a lack of existing basic standards for preparing and interpreting organization charts. Gradually a code of such standards is developing and gaining the acceptance of authorities in management. Some of the more generally accepted factors and procedures are given below. In presenting these methods it should be pointed out that (1) not all of them are yet universally accepted, and (2) as in all rules, exceptions may be desirable in particular instances. Generally, however, it is believed that the items presented constitute standards worthy of practice unless extenuating circumstances warrant deviation.

BOXES.—Rectangles are used most frequently for the “boxes” in which the names of the organizational units or other data are placed. Sometimes circles, triangles, ovals, or other geometric figures are employed for this purpose.

Box SIZES.—The comparative size of the box does not indicate the relative importance or administrative level of an organizational unit or position. When lack of space, the amount of data to be placed in the box, or other factors make boxes of varying size necessary, observance of the following standards is recommended:

1. Design the sizes of the boxes so as to present a balanced and symmetrical chart.
2. When possible, use boxes of the same size for organizational units of the same administrative level.
3. Use the larger boxes for the units or positions of higher levels. (As stated above, larger boxes do not in themselves represent positions of higher authority. But it is generally considered good charting practice to use the larger boxes for these positions.)

SOLID LINES.—Solid lines are used to represent delegation of authority between units or positions having a line relationship. They may be drawn vertically or obliquely. Vertical lines are used most generally, and usually join the middle of the bottom and the middle of the top of the appropriate boxes. Each box should have only one solid line originating from it and flowing to boxes representing subordinate units or positions. Good organization requires, also, that each subordinate box have one solid line running to it from one administratively superior unit or position. Many chart designers prefer to make the lines representing delegation of authority heavier than those which enclose the boxes.

BROKEN LINES.—Broken or dotted lines may be used to indicate functional or other relationships. The type of relationship expressed by the line should be stated in the legend of the chart. The chart should not attempt to show so many different relationships that it becomes too complicated.

DELEGATION OF AUTHORITY.—Charts are usually prepared so that lines of authority flow from top to bottom. Where particular organizations can best be shown with lines of authority flowing from left to right, this arrangement is permissible. The same chart, however, should not contain lines of authority flowing from top to bottom and from left to right.

CONSISTENCY.—Consistency in the data contained in the boxes of a chart is desirable. If organizational units are named, the use of such units should be retained throughout the chart; if positions only are named, they should be used exclusively. The indiscriminate intermingling of unit names, position titles, or functions in boxes should be avoided.

LEVELS OF BOXES.—For units in which no administrative relationships are involved, the location of the box on the chart does not indicate relative organizational or administrative status. In other words, the fact that a given box is located closer to the top of the chart than another box, does not necessarily mean that the unit it represents occupies a higher administrative status in the organizational hierarchy. This is important because it permits units on the same administrative level to be staggered on the chart to make the diagram more compact. This practice is particularly applicable to the units on the lowest level. Naturally, when feasible it is preferable that boxes representing units or positions of the same administrative level be placed at the same level on the chart.

COUNCILS AND COMMITTEES.—A permanent board, council, or committee should be treated as any other organizational unit. The constituency of the committee may sometimes be best shown by a footnote.

DUAL POSITIONS.—Where one employee occupies more than one position in an organization, each position should be shown on the chart in the same manner in which all other positions are shown. If desired, the part-time status of the position may be indicated by (1) placing an asterisk after the positions involved, referring to a footnote which explains the part-time status, or (2) placing a fraction in parenthesis after the title of the position on the chart.

CAPTIONS, LEGENDS, DATES, APPROVALS.—Every chart should, of course, contain a clear and complete title indicating the organization pictured and, when appropriate, a legend making other necessary explanations, such as the meaning of broken lines, etc. The effective date, or date of approval, and

the signature of the approving executive are also integral parts of every good chart. Opinions and practices differ with respect to the most preferable locations on the chart for these items. There has been little uniformity of practice. One company has adopted the following standards which appear to be worthy of consideration as a general guide:

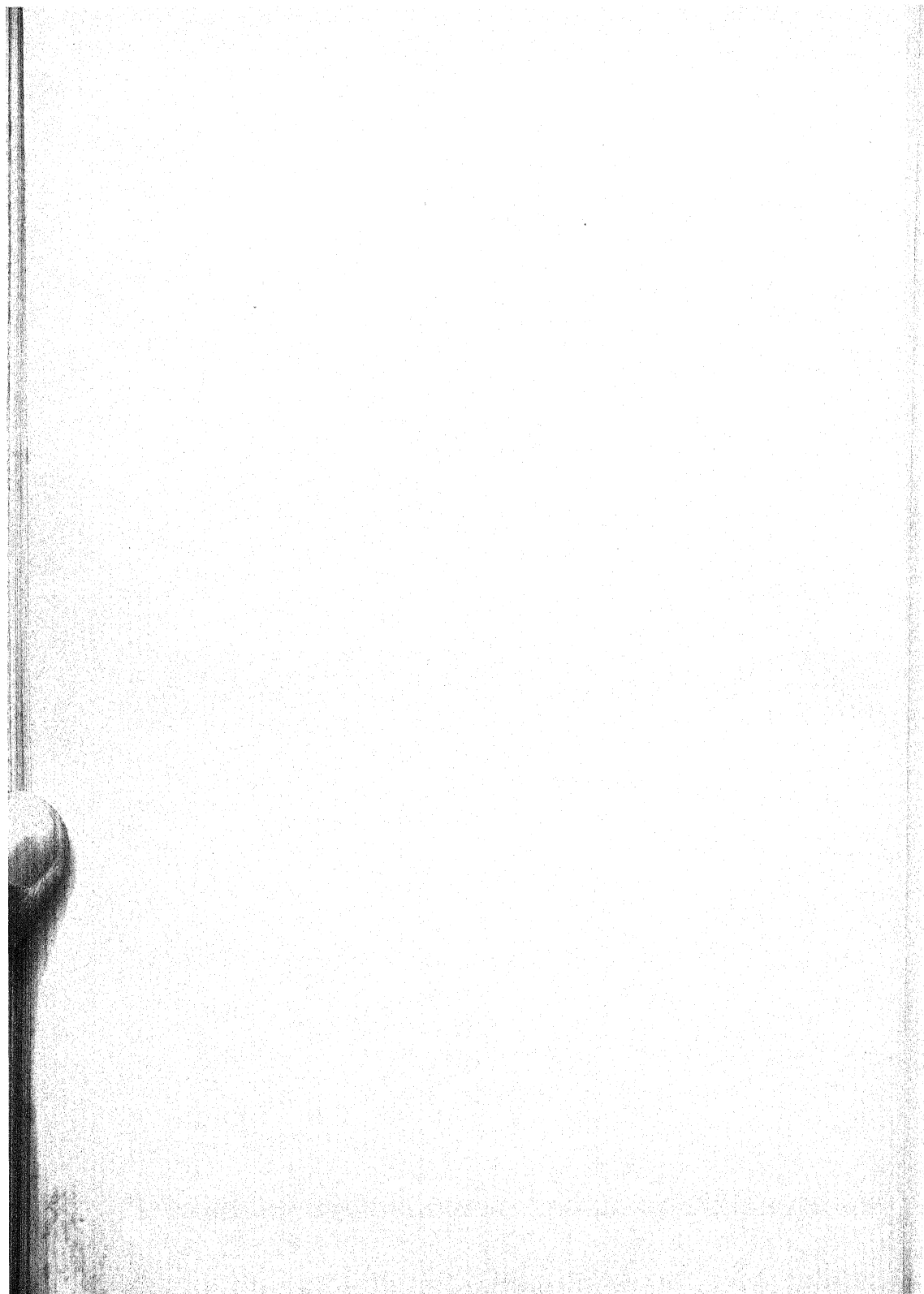
1. The title of the organization presented by the chart should be shown in capital letters at the top of the chart.
2. The date on which the chart is approved, or the date on which a proposed organization becomes effective, should be shown in the lower right corner of the chart.
3. The signature of the officer approving the chart should appear in the lower right corner of the chart, just above the date.
4. If a legend is necessary, it should be placed in the lower left corner of the chart.

Chart Revisions.—It is important to remember that the chart pictures the organization as of a certain date. It is a “still” shot in a changing organization and does not show the adjustments which are continuously occurring. The chart must be considered in its true role as an administrative tool, rather than as an end in itself. The necessity for revising the chart should not cause inflexibility in the organization.

Appropriate procedures and arrangements must be made to keep the charts up to date, so that they at all times reflect the current organization. The importance of this requirement cannot be overemphasized. A chart which does not portray the organizational data correctly and currently may cause more harm than no chart at all.

Responsibility for maintaining the charts on a current basis is usually placed with the individual or unit responsible for creating the original charts. It is fundamental, of course, that the operating supervisors understand the desirability of maintaining up-to-date charts, and that they report all changes to the appropriate individual or unit.

PART II
THE HUMAN ELEMENT



CHAPTER 3

BUILDING UP THE OFFICE FORCE

Determining Personnel Requirements

Types and Number of Persons Needed.—From the viewpoint of the office manager the task of determining personnel requirements presents two questions, one qualitative and the other quantitative:

1. The qualitative question is: What types of personnel are required to perform the tasks which management has assigned to each organization unit?
2. The quantitative question is: How many people of each type are needed to process the workload imposed by these tasks?

Neither of these questions can be answered adequately until the functions to be performed have been defined, the responsibility for their performance has been fixed, and the basic methods, procedures, and working tools have been developed or selected. Thus, the actual determination of personnel requirements is a problem of translating these prior determinations into, first, a set of job specifications describing the qualifications necessary for the performance of each job, and second, a "manning table" setting forth the number of people needed under each job specification to handle the known or anticipated workload.¹

Qualifications Needed on the Job.—A job specification should state the minimum prerequisites for the performance of each type of job in terms of

1. "Mental" qualifications—as measured by education, level of intelligence, specialized knowledge, etc.
2. "Skill" qualifications—as measured by the type and length of previous experience, the type and length of on-the-job training, speed and dexterity in the operation of machines and devices, etc.
3. "Physical" qualifications—as measured by height, weight, strength, sight, appearance, age, sex, etc.

Such qualitative specifications must be derived from an analysis of the content and value of the job in question. Since job analysis, job evaluation, and the preparation of job specifications are the basic procedures not only for

¹ Statistics and results of surveys of various personnel practices will be found in Appendix B.

personnel selection, but also for salary evaluation, placement, testing, training, and other major phases of a complete personnel management program, it is very desirable that the determination of qualitative personnel requirements be fully integrated with these other programs, and that one unit of the personnel department have the over-all responsibility for developing job descriptions, job specifications and job evaluation standards. A full discussion of techniques of job analysis, including the preparation of job descriptions and job specifications, is contained in another section of this chapter.

Number of Persons Required.—The translation of workload into terms of the number of people required is a continuous problem of the office manager, and one of his most important tasks, since it is the basic element of expense control. The accuracy with which quantitative personnel requirements can be established and controlled is furthermore directly dependent upon the adequacy of performance and production standards, the effectiveness of first-line supervision, the simplification and standardization of methods and procedures, the degree to which labor saving devices are used, the effectiveness of on-the-job training, the use of incentives, etc. The basic methods of establishing quantitative requirements are generally of two types.

THE BUDGET OR "QUOTA" METHOD.—Under this plan management authorizes a ceiling for each department, usually in the form of a budget allowance for payroll expense, which in turn is based upon an estimate of the number of people of each type and salary level who will be required for a future period. In its most common form this method is represented by the conventional annual or semi-annual expense budget for each department, which is usually the result of the department heads' estimates as reviewed and adjusted by management. Since this method places reliance on the judgment of individual supervisors, its effectiveness is dependent upon the knowledge, analytical ability, cost-consciousness, etc. of the supervisors.

ANALYSIS OF WORKLOAD FACTORS BY A SYSTEMATIC, OBJECTIVE PROCEDURE.—A variety of individual techniques for the determination of quantitative personnel requirements by workload analysis is now used. Basically, however, all involve three steps:

1. The selection of the most significant work indices for the organizational unit under study—that is, those indices which have the most direct relation to the amount of personnel effort required to process the work of the organization.
2. The compilation of accurate workload information, both present and anticipated, for each work index.
3. The development of production standards for each work index—expressed in terms of the number of hours required per work unit, or

the number of work units which should be produced per hour. Such standards may be based upon past performance of the group in question, or upon controlled studies made by stop watch or other time measuring devices.

Given these three factors, it is then possible to compute the number of "man-hours" required to handle the known or anticipated workload of an organization. Such determinations are often used to audit the present staffing of an organizational unit to test it for under- or over-staffing. Under a complete plan of personnel control, however, these determinations are used as the basis of a manpower-workload reporting system, which reflects from month to month the volume of work produced and the number of man-hours worked, compared with an established man-hour production standard. Further discussion of the techniques of production measurement and production records are presented in other chapters of this book.

Job Analysis

Definitions.—Those management tools commonly referred to as job analysis, job description, and job specification are used for many purposes and, unfortunately, the terms have been assigned a number of meanings. Basically, these processes are carried out in order to determine and record the duties assigned to jobs or positions within an organization and to define the human qualifications necessary to their successful performance. Before the end products of these processes can be discussed it is necessary to define these words and terms in the sense that they will be used in this chapter.

The words "job" and "position" will be used synonymously. It is recognized that for other purposes they may be used in several different senses. However, a "job" or a "position" will be considered as meaning an aggregation of duties normally assigned to one individual or, in cases in which the duties, responsibilities, and working conditions are the same, to a group of individuals.

The terms "job" and "position" are not to be confused with the word "occupation." An "occupation" is made up of a large number of jobs requiring generally the same background of knowledge and experience and usually involving somewhat similar duties. For example, the terms stenographer, bookkeeper, accountant, etc. are used to describe occupations. Within any one of these occupations there are innumerable jobs which vary in content, requirements, and working conditions because of differences in the manner in which duties are organized in various companies or in the organization units within any one company.

The word "analysis" also has several meanings. It is defined in the Oxford dictionary as "resolution into simple elements." To the job analyst the word means securing all pertinent facts and opinions in connection with

job content, requirements, and working conditions, and the determination of the lines of authority and responsibility for each duty. It is true that the term "job analysis" is frequently used with respect to work performed by industrial engineers and methods analysts in improving working methods. The term will not be used in this latter sense in this chapter. "Job analysis" here means the original investigation of the job to determine its content, characteristics, limitations, and environment.

Many persons use the terms "job description" and "job specification" separately. Actually, the "job description" is a write-up of the duties involved in any position with appropriate descriptions of the manner in which the work is performed and the precision or decision limits of each duty as developed through the job analysis, and preferably expressed in terms of the job factors upon which the subsequent evaluation is to be made. The "job specification" is a detailed statement of the specific human qualifications required for satisfactory performance and, in some cases, for future promotion. The two records may frequently be combined on one form, so long as factors involved in qualifications for future promotion are not permitted to affect the evaluation of the positions.

Purposes of Job Description.—From the point of view of salary and wage administration the primary purpose of job analysis and job description is to provide a record which will serve as the basis on which job evaluation and job pricing can be performed. Job evaluation, to be described in another chapter, is that process which aligns jobs in the order of their relative difficulty and importance within an organization. Job pricing, usually performed by means of labor market surveys and quite frequently by means of collective bargaining, is the process which sets the price for the various levels of difficulty and importance set up by a job evaluation program.

In large companies it is frequently impossible for the personnel interviewer to have a broad enough knowledge of the company's operations to enable him to keep individual job duties and job requirements in mind. The job descriptions and specifications resulting from job analysis provide an aid in the selection and placement of employees and a record which enables interviewer to discuss the job with applicants or candidates more cogently.

Job descriptions prepared for purposes of selection and placement, or to be used in job evaluation processes, serve as an excellent initial basis for organization and methods studies. It must be recognized, however, that the industrial engineering or methods man needs much more data in connection with jobs being studied by him than is usually found on the job description used for other purposes.

Job descriptions have been used to good effect in so-called "skill dilution" activities when labor market conditions have been such that the normal supply of skilled employees is not available. By this process, companies

have been able to segregate the more skilled operations from the less skilled operations in any one job or group of jobs so that individual employees with less experience and ability could be assigned to the less difficult and important parts of the work, thus saving the skills of the more experienced workers for full application to more skilled segments of the job.

No training program can operate to full advantage without job descriptions which indicate training requirements so that those parts of the job requiring the most training can be carefully examined when training programs are being established.

Getting the Facts on Job Content.—Facts and opinions in connection with job content and requirements may be secured in several ways. Some job analysis programs have been completed by simply asking the supervisory force to prepare job descriptions. Unfortunately, however, experience in most situations employing this approach has indicated that supervisors cannot be trained in a short period of time to prepare job descriptions standardized to the extent that the same kind of information will be written in the same way for all varieties of jobs. Moreover, many supervisors with the ability to describe jobs adequately do not have the detailed knowledge of job content necessary for a thorough analysis.

Because of these and other disadvantages of the supervisory approach, there is an increasing tendency to secure the necessary information from the workers themselves and to have the information, so compiled, checked by the supervisory force. Usually the compilation of facts is done by a specialist in job analysis who interviews the workers at their workplaces, prepares the record of the analysis in accordance with standard practice instructions, and submits the completed job description to the supervisory force for agreement and endorsement.

In securing the information from the workers it has been customary, at least in the case of office workers and other salaried employees, to use questionnaires. A completed questionnaire in this connection gives the employee a feeling of participation in the study, enables the analyst to determine what specific information is required in addition to the information given in the questionnaire, and also gives the analyst some idea of the job content prior to the interview. However, most employees are not always able to describe their duties accurately in writing, or to put the proper emphasis on the different duties, and therefore it is not desirable to prepare job specifications from questionnaires prepared by employees unless a trained analyst has interviewed at least a representative number of employees in each position. Only in rare cases should a job description or evaluation program be based on job specifications prepared solely as a result of questionnaires.

Figures 4a to d, inclusive, give an example of a questionnaire to be filled in by each employee on each job to be studied. Figures 5a and b are a

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INDIVIDUAL'S JOB QUESTIONNAIRE

Name	Dep't	Section or Location
Payroll	Time with Company	Time this position
Title	Name, Immediate Superior	

PLEASE READ THE ENTIRE FORM BEFORE MAKING ANY ENTRIES

DESCRIPTION OF DUTIES:

Supervisory Duties

(1) How many employees do you supervise? (List job names and number of people in each job.)

(2) Briefly, what is the general purpose of their work?

Personal Duties

(3) What duties do you personally perform in the usual course of your work?

(4) What duties do you perform only at stated periods, such as weekly, monthly, etc.?

(5) What occasional duties do you perform at irregular intervals?

Figure 4a. Individual's Job Questionnaire (page 1)

MINIMUM STARTING REQUIREMENTS OF YOUR POSITION: (Note: Please do not enter your own personal education, experience, etc., unless it happens to agree with your opinion of minimum requirement.)

- (6) What is the lowest grade of grammar, high school or college education that should be required of a person starting in your position?
- (7) If any special courses are needed, name them.
- (8) What is the lowest amount of past experience which would enable a new employee to learn and perform the duties of your job satisfactorily? Name the kind of experience, where and how it could be obtained and the time required to acquire it.
- (9) Given the above education and experience, what would any employee new to your position have to learn that would not have been learned in past training and experience; what is the shortest period after starting in the work in which he could learn what these new factors are and how to handle them?
- (10) After learning these new factors, as in Question No. 9, how long would it take the new employee in your position to obtain sufficient practice in doing the new work to reach the point at which he would be just "barely" satisfactory?
- (11) What is your opinion as to the youngest age at which anyone could start in your position?
What is your opinion as to the oldest age at which anyone could start in your position?
- (12) Are there any physical requirements of the work which necessitate the possession of special physical qualifications, such as height, weight, strength, etc., by a candidate for your position? If so, please name them.
- (13) Please list any other requirements not covered above and any personal qualifications and characteristics which you believe should be present in a candidate for your position.

FACTORS CONCERNING THE PERFORMANCE OF YOUR DUTIES:

- (14) How are you instructed, and by whom, as to what work is to be done?
- (15) What, if any, instructions do you receive as to how the work is to be done and from whom are they received?
- (16) In the performance of your duties, what decisions are you permitted to make without reference to higher authorities?

Figure 4b. Individual's Job Questionnaire (page 2)

(17) What reports do you personally prepare?

(18) What machines or other equipment do you personally operate; regularly or only occasionally?

(19) Roughly, what proportions of your time are spent in: Standing%; Sitting%; Climbing%; Lifting%; Walking%; Other%;

(20) What, in your opinion, is the most complex or difficult part of your work?

(21) What is the nature and extent of your responsibility for the employees under your supervision?

(22) What is your responsibility for materials processed, produced, handled, etc., by yourself (and your subordinates, if any)? Please name the materials.

(23) What is your responsibility for equipment, if any; what is the equipment?

(24) What contacts with other people are you required to make, other than with your subordinates and your immediate superior?

(25) What is your responsibility for cash and/or negotiable instruments?

(26) What, if any, is your responsibility for determination of methods to be used by yourself or others?

Figure 4c. Individual's Job Questionnaire (page 3)

(27) What is your responsibility for records and reports?

(28) What parts of your work are checked by others?

(29) Describe any conditions present in the location and nature of your work, such as surroundings, dust, gases, temperature, etc., which you consider unfavorable, undesirable or disagreeable.

(30) What dangers or accident hazards are present in your work?

(31) What are your regular working hours per day and how many days per week do you work?

(32) Are you subject to call for emergency or other special work; if so, how frequently are you called?

(33) Estimate the average number of overtime hours per week called for by your work.

(34) Does your work require traveling; if so, how often and for how long per trip?

Use this space and additional sheets of paper, if necessary, for any special features of your work not covered above, and for answers to questions for which more space is needed.

Date _____

Signed _____

Figure 4d. Individual's Job Questionnaire (page 4)

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SUPERVISOR'S QUESTIONNAIRE

Position _____ Dept. _____ Division _____

Section _____ Location _____ Title and Name _____
 Immed. Supervisor _____

Name(s) of employee(s) occupying this position: _____

Please enter below your opinion of the **minimum starting requirements** which would enable a candidate to qualify for this position. (Note: Do not enter the qualifications of the present incumbent unless they coincide with your opinions of the minimum requirements.)

- (1) What **minimum** formal education, or its equivalent, should be required of a candidate for the position?
- (2) What special courses or what specialized technical knowledge is required, if any?
- (3) What previous experience should the candidate have had in order to meet the **minimum** starting requirements of the work?
 - (a) What kind of experience is required?
 - (b) Where can it be obtained?
 - (c) What is the minimum length of time required to acquire it?
- (4) Given the minimum starting requirements outlined in the preceding sections, **what new factors**, not encountered in previous experience and training, would an employee starting in this position have to learn and how long would it take him to learn the nature of all of them?
 - (a) What new factors?
 - (b) Time required to learn the nature of these factors.
- (5) Having learned the nature of these new factors, how long should it take to obtain sufficient practice in doing these new things for the new man to reach the point at which you would feel he was just barely earning the money paid as a starting wage?
- (6) Do any physical requirements of the work make it necessary to require certain physical qualifications of the candidate, such as height, weight, strength, etc.; if so, please list such qualifications.
- (7) What is the lowest advisable age for an employee starting in this position? _____
 What is the highest advisable age for an employee starting in this position? _____

Figure 5a. Supervisor's Questionnaire (page 1)

FACTORS INVOLVED AFTER STARTING IN THE POSITION:

- (8) How many employees are supervised by the incumbent of this position and what is the nature and extent of this supervisory responsibility?
- (9) What is the responsibility of the incumbent of this position for such items as materials, equipment, contacts (within or outside the company), cash or negotiable instruments, methods, and/or records or reports?
- (10) To what types of work is the employee restricted and/or to what limits is he permitted to make decisions without reference to higher authority?
- (11) How frequently, and in what manner, are you in contact with the job to check progress, give further instructions and answer questions?
- (12) What further checks are there on the effectiveness of the work?
- (13) What, in your opinion, would be the most difficult part of the work to teach a new incumbent?
- (14) From what positions within the Company could employees be promoted to this position?
- (15) For what higher positions in the Company should this work train an employee?
- (16) What are the regular working hours of the incumbent(s) of this position?
- (17) Over a twelve months period, what are the average number of overtime hours per week required by the job?
- (18) Please list any mental, physical or skill qualifications and any special personal attributes, not specifically covered above, possession of which:
- (a) Can be determined during the pre-employment interviews;
 - (b) Must be demonstrated after starting work in order to justify continuance of the employee in the position.

Date.....

Signature.....

Figure 5b. Supervisor's Questionnaire (page 2)

questionnaire completed for each job by the immediate supervisor. The questionnaires should be filled in independently so that the analyst may make comparisons of opinions shown.

The interview should take place at the workplace of the employee. The employee is most at home in his accustomed surroundings. He is able to show examples of work done and to have at hand the files, equipment, etc. with which he works. The analyst cannot hope to get a full appreciation of the difficulties and importance of the work performed unless he can watch it being performed under the usual conditions and in the normal surroundings.

No description of the procedure required to initiate a job analysis program would be complete without some remarks concerning essential pre-determination of policy and publicity. The management should prepare a written statement of the reasons why the job analysis program is being initiated and announce its policy with respect to the manner in which the results of the program are to be applied. For example, if the job analysis program is part of a general program of job evaluation, a definite statement should be made prior to the initiation of the program as to the policy of the management with respect to employees shown to be overpaid and employees shown to be underpaid as a result of the study. If the job descriptions and specifications are to be used by the personnel department in selection and placement, employees should be told that determination of job requirements will have no effect on incumbents of the job who do not appear to have the requirements established by the job specification.

When the written statement of policy and purpose has been prepared, meetings of the supervisory force should be held and each supervisory conferee should be given a copy of the written statement and an opportunity to ask any questions in connection with procedure, personnel, policy, or application of results. If a collective bargaining agent is in the picture, the appropriate officer of the company should explain the entire program to the appropriate collective bargaining representatives of the employees and seek the cooperation of such representatives in furthering the program among their constituents. Each supervisor should be held responsible for insuring that every one of his immediate subordinates is acquainted with the purposes of the program and the policy of the company in this connection.

When the analyst enters any section of the company in which a job is to be studied he should be careful to follow organizational lines and not go directly to the employee whose position is to be analyzed. He should first acquaint the appropriate supervisor with his presence in the department and discuss with the supervisor the best employees to be selected for purposes of the study, the time most convenient from the point of view of the work being performed in that section, and, in general, see that the supervisor is fully cognizant of the work to be performed.

WHAT FACTS TO GET.—Facts to be secured may be divided into three parts, namely, identification information, duties performed, and description of surroundings and hazards. It will be noted from this classification and from the description following that these items are matters of fact and not matters of opinion. Because they are matters of fact great care should be taken by the analyst in establishing the factual nature of the data secured. For example, if an employee claims that he performs certain duties and the analyst through some prior contact has seen like duties performed by other employees, it is an indication that duplication exists or that the employee being interviewed has not correctly stated the nature of the duty in question. It is the responsibility of the analyst to look into this matter until he is satisfied that the duty actually is a responsibility of the employee. If it is a matter of duplication the analyst should enter it as a fact on the job specification regardless of the possibility that the duplication may at some later date be eliminated.

The identification information to be secured includes such items as payroll title, alternate title or titles, the name of the organizational unit under which the job is found, and the title of the job's immediate supervisor. If the company has payroll codes or other private identification methods, space should be provided for entry of such information at the top of the job description form.

That part of the job description which deals with the duties requires the most painstaking effort of any of the sections of the description. It should consist of a list of the duties and, wherever possible, some indication of the frequency of occurrence of each duty or some other indication of importance such as percentage of time spent. It must be recognized, however, that it is extremely difficult to get factually accurate expressions of either frequency of occurrence or proportion of time spent on each duty. This is particularly true when higher level jobs are being analyzed. Therefore, unless the analyst is certain that such statements are either factually accurate or that estimates of these connections are extremely reliable they should be used with caution in the specifications and with statements to the effect that they are approximate figures.

Each duty should be described in sufficient detail as to the how, when, what, and where of the duty, to bring out the complexities involved. Where applicable, the duty description should indicate the nature of the work when received, what is done to it, and its condition or status when passed on. Immediately following the description of each duty should be a brief statement of the nature and extent of the responsibility assigned to the incumbent of the position in connection with that duty and, where authority is involved, the limits of such authority should be clearly stated.

The third class of facts to be secured involves a statement describing the nature of the surroundings in which the work must be carried on and a de-

scription of any hazards inherent in the job. It will be found extremely advisable to provide the analyst with a glossary of standardized terms to be used in describing surroundings. Such qualifying adjectives as damp, hot, dirty, crowded, gas fumes, etc. should not be used unless they mean about the same thing in every situation. In companies in which all clerical employees are housed in the same building and work under exactly similar conditions, it may not be necessary to include statements of surroundings or hazards, but care should be exercised in making a decision to eliminate such references. In most office situations, differences of this type do exist and even though they may be minor differences, employees are sensitive to these differences and the company should be able to show that they have been taken into consideration in describing the various jobs.

It is important that the description represents the situation as it actually exists when the study is made, not some past practice or ideal to be attained in the future. It is also essential among jobs within any occupation that existing differences be not obscured by attempts at making job descriptions conform to some preconceived idea of job classifications or "standardized" nomenclature. Specifications should show facts as they are, not as some one would like them to be in order to "simplify" personnel administration.

WHAT OPINIONS TO GET.—Determination of the human qualifications necessary to the successful performance of the job is a matter involving judgment and opinion in most situations. There may be a very small number of companies that, by systematic study, have analyzed the qualifications of successful performers on all clerical operations and have thereby established fairly accurate factual qualification requirements. However, if there be such firms, the results of their efforts have not been widely spread. Actually, opinions as to required qualifications vary among the several operators on the same job and among the supervisory force in charge of similar positions. In most cases the individual employee's opinions as to job requirements will vary almost directly with his individual qualifications. Most supervisors will tend to express their opinions as to qualifications in the light of the ideal or maximum because they feel that the more highly qualified an employee is, the easier supervision of the job becomes.

Therefore, it becomes necessary for the analyst to adopt a very objective viewpoint. Experience has indicated that a request for opinions as to minimum starting requirements is the best basis for securing standardized opinions. Most people, whether they be employees or supervisors, find it difficult to give an idea of average requirements, while to ask the same people for their ideas of maximum requirements results in expressions of ideals which are rarely secured in practice. The use of minimum requirements has further advantages. For example, if an employee or a supervisor is asked the lowest amount of formal education or its equivalent that he would con-

sider in a candidate for the position in question, a fairly positive reply will be obtained. From the point of view of the personnel department, such a definition of requirements tells them that they should not normally refer candidates for the position unless they have at least the minimum qualifications so defined. From the point of view of the job evaluator the qualifications expressed on the specifications will be comparable. However, it makes no difference in the final evaluation whether minimum, average, or maximum requirements are used so long as the same yardstick is used in expressing requirements of all jobs to be evaluated.

Because the stated requirements of jobs as collected under this method are to a considerable extent opinions and not entirely factual, it is necessary to secure as many competent opinions as possible. The original statement may well come from representative employees in each position. These statements should be checked and endorsed by the appropriate supervisory force and further examined by competent personnel officers, industrial engineers, methods analysts, and others who, for any reason, come in contact with the jobs and their incumbents.

There is a very good test that can be set up to determine which of the opinions most accurately express the minimum job requirements. If, in the analyst's opinion, the estimates expressed by some one individual or group are too high, the analyst should ask those giving the opinions to point out the duties that actually require the use of such higher qualifications. If, on the other hand, in the analyst's opinion the requirements given are too low, the analyst should pick out from among the duties those that he believes require higher qualifications and ask how those duties could be performed if the incumbent in the position did not have the higher qualifications. To state this test in another way—select the duty apparently requiring the highest level of the qualification being discussed and be sure that your statement of minimum requirements provides for that qualification level; in the statement of requirements do not exceed the level thus indicated.

Recording the Results of the Analysts.—The job description and job specification forms in any company should be individually tailored to meet the requirements of that particular company. Forms used by other companies in successful installations can act as a guide to the design of forms appropriate to the company making the study, but outside forms should not be copied verbatim unless the use of such forms has been tested by application to a representative cross section of the jobs to be included in the analysis.

The best way to approach the design of a job description form is to secure forms from other companies that have been applied to similar types of work in the same industry or group of occupations. All these forms should be examined from the point of view of applicability to the company's particular installation. It will be found that some of the headings on many of the

forms will not be applicable to the specific situations and that none of the forms contains provisions for the entry of certain information that might be quite important to that installation. In the case of clerical and other salaried positions, it is not advisable to have too many predetermined and detailed headings but rather to have the headings cover only the broad general outlines necessary to a general job description.

Name (s)	SALARIED JOB SPECIFICATION			Date Rev.
	Tot. Pts.	Gr.	No.	
Position	Dep't	Div.		
Sec., Loc., etc.		Title Immed. Supervisor		

Figure 6a. Job Description Form for Salaried Employees

Figures 6a and b are facsimiles of one successful job description form for salaried employees.

SECURING APPROVAL OF THE WRITE-UPS.—The necessity for reaching agreement as to the facts and the opinions entered on the job description forms cannot be too strongly emphasized. This agreement should be secured from the employees whose jobs are being studied and from the supervisors of those employees. If there is a collective bargaining agent in the picture, a management-union committee established to act as final arbiters on disagreements arising from items entered on the job description has frequently been used to advantage. If there is no collective bargaining agency, and if there are not large numbers of employees assigned to each job, it has been found helpful to ask the incumbents of the positions analyzed to check at least the description of duties (i.e., the factual information), if not the entire description.

In any case, the minimum requirement should be some indication of endorsement and approval by at least the immediate supervisor of each position entered on the specification form before it is put to use either in job evaluation or in employee selection and placement.

Time Required for Job Analysis and Description.—In initiating and carrying through a program of job analysis and description, the question of time required is always pertinent. With many reservations, this question can be answered from the point of view of the average office situation and the typical clerical job by saying that one experienced analyst can analyze approximately ten clerical positions per week. However, depending on

<p>MENTAL EFFORT Intelligence Grade: _____</p> <p>Educational Requirements & General Knowledge: _____</p> <p>SKILL</p> <p>Specific Knowledge to Start _____</p> <p>Where Acquired & Time to Acquire _____</p> <p>Knowledge Acquired on Job & Time for Minimum Proficiency _____</p> <p>PHYSICAL EFFORT Activity: _____</p> <p>Special Physical Requirements _____</p> <p>RESPONSIBILITY</p> <p>MEN</p> <p>MATERIALS</p> <p>EQUIPMENT</p> <p>MARKETS</p> <p>MONEY</p> <p>METHODS</p> <p>RECORDS</p> <p>WORKING CONDITIONS Reg. Working Hours _____</p> <p>Required Overtime _____</p> <p>Surroundings, Hazards, etc. _____</p> <p>REMARKS</p>	<div style="border: 1px solid black; height: 150px; width: 100%;"></div>
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Figure 6b. Job Description Form for Salaried Employees (*continued*)

specific situations in individual companies, this figure will range somewhere between five and twelve jobs per week in accordance with the combination of the various factors listed in the following paragraphs and the weighting of these factors in the company whose clerical jobs are being studied.

One of the most significant sources of additional time demands lies in the ability or lack of ability of the incumbent of the position to express himself, contribute his ideas, and describe his job to the analyst. This condition will be modified, of course, by the experience of the analyst and his relative ability to draw from employees their ideas and the significant facts and opinions in connection with their assignments. The experience of the analyst contributes to the speed with which analyses can be made in other connections, such as knowledge of the work procedures and business of the company being studied. The extent to which higher type accounting, professional, and a supervisory jobs are to be included in the program also increases the time required for the job analysis work. If jobs to be covered by the study do not include positions in the first line of supervision or semi-professional work such as accountants, etc., and all other factors being equal, the figure of ten jobs per week can be met very readily, but as the study is applied to increasingly higher areas in the organization the relative difficulty of analysis and speed of completion increases geometrically.

Other reasons for variation in time required to complete the job include such elements as: the degree of variation among duties of employees assigned the same job title; the degree to which jobs are to be combined into "classifications"; the number of incumbents on the same job; the number of job elements combined in any one job and the relative complexity of the elements; the extent to which duty lists and definitions of lines of authority and responsibility have existed prior to the initiation of the analysis program; and the number of variations in the company's over-all activities.

If more than one analyst is to be engaged in the work, it will be found that the program can be expedited by assigning to each analyst operations or positions of the same general type throughout the entire company. For example, one analyst could be assigned to all stenographic or secretarial positions regardless of their departmental locations. It should be noted, however, that if the analysts are also to participate in the rating, their ability to rate various types of jobs will be appreciably decreased if their assignments in the analysis phase have been too narrow.

Recruiting and Selecting Personnel

Engaging Employees.—Often the subject of engaging personnel is associated with visions of employment ads, lines of men and women waiting listlessly in front of closed doors marked "Employment," routine hiring interviews, and perfunctory so-called intelligence tests. The functions de-

scribed here, however, may be called "attracting desirable men and women to an organization"—the true purpose of an employment program.

The employment officer is able also to perform an important public relations function as he discharges his normal duties. He can "sell" the company and its advantages as a place to work. In his contacts with employment agencies, in preparing advertisements, in interviewing applicants, and in his relations with persons already employed, he has opportunity to emphasize the attractive features which make employment with his company worth while.

Regardless of how able an employment officer may be, he cannot do an effective public relations job unless he has something of value to sell. A company's personnel policies must be such as to make association with the company desirable. In this respect an employment officer is like an advertising manager—he must be given a product that combines high quality and desirable features before he can stimulate and sustain a demand for what is offered.

A recruitment program is fashioned to a large degree by the policies which express management's attitude toward employees with respect to such fundamentals as economic security, working conditions, hours of work, opportunities for advancement, personal recognition, and the dignity accorded individuals within the organization. The discussion in this chapter is predicated upon the assumption that the foregoing fundamentals have been adequately recognized in the policies upon which the employment officer's effectiveness must depend.

Devices for Recruitment.—The steps to which the employment officer may resort in attracting desirable applicants to fill a vacancy in the office force would be:

1. Secure a requisition.
2. Check the requisition against the file of employees who have requested transfer.
3. Check the requisition against file of active applications.
4. Refer the requisition to employment agencies—public and private.
5. Canvass schools and colleges.
6. Prepare and publish classified advertisements.
7. Investigate miscellaneous sources of applicants.

The Employee Requisition.—The first essential in filling a vacancy is a requisition. The requisition is normally issued by the department in which the vacancy exists and should be signed by the head of such department or by someone with authority to act for him. The requisition should indicate whether the person to be hired will be within budgeted personnel. If not, the requisition should be countersigned by the controller, the personnel di-

rector, or some other executive authorized to approve employment of persons in excess of budget.

The requisition should also include the number or other code reference identifying the job to be filled. By reference to the job specifications file the employment officer may secure a detailed description of the job and specific information as to the mental, physical, and other qualifications required of the applicant to fill the position satisfactorily. Without complete job specifications, accurate employment requisitions can hardly be expected, and without these an employment officer is as much handicapped as would be a purchasing agent who attempted to secure competitive bids without benefit of a purchase requisition and any necessary material specifications.

FILLING REQUISITION BY TRANSFER WITHIN ORGANIZATION.—Progressive organizations encourage employees who wish to transfer from one job or department to another. Such an attitude stimulates employees to prepare themselves for more responsible work. However, a transfer from

APPLICATION FOR INTERDEPARTMENTAL TRANSFER		
NAME.....	CLOCK NUMBER.....	
MARITAL STATUS: Single.....	Married.....	No. of Dependents.....
PRESENT DEPARTMENT.....	PRESENT POSITION.....	
DATE EMPLOYED BY COMPANY.....	FIRST POSITION.....	
DEPARTMENT TO WHICH TRANSFER IS REQUESTED.....		
POSITION DESIRED.....		
QUALIFICATIONS FOR DESIRED POSITION:		
Education:		
Work Experience:		
Special Preparation:		
REASONS FOR THE DESIRED CHANGE:		
.....		
.....		
.....		
DATE.....	SIGNATURE.....	

Figure 7. Application for Interdepartmental Transfer

without the department should be considered only when there is within the department no interested and available person to whom the assignment would represent a promotion.

To facilitate the registration of a desire to transfer, special forms should be made available to permit the employee to indicate the type of work he is interested in, his qualifications for such work, and what efforts he is making to prepare himself for assignment to such work if the possibility of transfer should arise. Such a form is illustrated in Figure 7. Requests for transfer should be carefully filed and cross-indexed by name of the employee as well as by title of the job or nature of the work to which transfer is desired.

The request-for-transfer file should be the first source investigated when a job requisition is filed with the personnel officer, and every possible consideration by interview, testing, and other appropriate means should first be given to those employees within the organization who have expressed interest in this particular type of work. If the requisition cannot be filled from within the organization the employment officer must turn to other sources.

APPLICATION AND EMPLOYMENT CORRESPONDENCE FILES.—Almost every organization receives unsolicited letters of application from persons who, from one source or another, have heard about the particular company and have become interested in the possibilities of employment with it. The more effective a company's public relations program the more letters of this nature it receives. It is not possible to offer employment to all such persons. In some cases, where unusual qualifications are indicated but no immediate openings are available, application forms are forwarded to the writer for completion. In others, the letters may be appropriately marked and filed for future reference—the writer being promptly advised of the possibility of consideration at a later date. In the interests of good public relations, all letters of application, whether or not any encouragement may be given the writer, should be answered promptly and in those instances in which the applicant is advised that he will be considered as subsequent vacancies occur, a follow-up should be placed in the file so that the applicant may be advised at intervals that he is still under consideration. All applications and letters of inquiry from likely persons should be filed alphabetically and cross-indexed under one or more job titles in accordance with the type of work for which the applicant has applied and for which he is apparently qualified.

The application and employment correspondence file, if properly maintained, can be a very valuable source for recruitment. The material should be reviewed frequently and every effort made to keep it up to date by correspondence with the applicants to cull out those who have lost interest in the company, and also to secure additional information concerning the skills, interests, work records, and other pertinent aspects of the applicants' qualifications.

EMPLOYMENT AGENCIES.—Private employment agencies provide a highly specialized service which can be of invaluable aid to the employer when he cannot fill a vacancy by transfer or through the application file. Such agencies are frequently criticized because of circumstances which they can do very little to control without greater cooperation than many employers seem prepared to give them. For example, it is often said that employment agencies send to a prospective employer too many applicants who apparently are not qualified to fill the job, the inference being that the agency has not troubled to inquire into the qualifications of the various individuals before referring them to the employer. More frequently than not, however, the employer has failed to provide the agency with a requisition which is sufficiently specific with reference to the duties of the position, educational requirements, physical qualifications, age, sex, starting salary, promotional opportunities, salary range, and other pertinent factors which would enable the agency to limit its references to those who might conceivably be acceptable to the employer. The employment officer should be able to supply full information based on thorough job analysis and complete job specifications.

The public employment agency, operated under federal and state authority, has in recent years become increasingly valuable as a source of recruitment of new employees. Formerly regarded with considerable disfavor, the public employment agencies are now, in general, efficiently manned and well managed. They utilize modern interviewing techniques and employ up-to-date testing methods upon which employers may rely with confidence in filling job requisitions.

The value of the public employment agencies has been considerably increased by the influence of unemployment compensation, for which the unemployed may qualify only upon registration with the public employment offices. The names and skills of most unemployed persons are a matter of record with such agencies, and such an important source of manpower should not be overlooked by any employer.

SCHOOLS AND COLLEGES AS A SOURCE OF NEW PERSONNEL.—Vocational schools, high schools, and colleges should be regularly canvassed when seeking young men and women to fill vacancies in the organization. School and college graduates are naturally more in evidence among job applicants during the periods which mark the ending of semesters, but all colleges and most high schools have established active placement bureaus which maintain records of graduates who are either unemployed or who might be interested in changing positions. Such records will frequently provide an employer with an outstanding addition to his personnel.

Many employers regularly send representatives to selected schools and colleges to address the student body about job opportunities. Others, for a similar purpose, make films or slides available to educational institutions.

Such practices—whether or not they lead to applications for employment, and they frequently do—constitute a public relations medium which cannot help but build up good will for the employer.

ADVERTISING FOR EMPLOYEES.—While there are certain definite objections to the use of help wanted ads in the classified sections of trade magazines and newspapers, such advertisements can be very productive. If an open ad is used, it is likely to cause resentment among present employees many of whom may feel that they should have been considered for the position. If the ad is a blind one, many likely persons who might be interested are dissuaded from applying for fear that their present employer may be the author of the ad. Nevertheless, advertisements, particularly where the vacancy to be filled requires a specialist of one type or another, will probably reach some persons who might not be reached by any other means.

In preparing the copy for an advertisement, every effort should be made to set it up so as to attract attention and to sustain interest. In addition to the essential information concerning the particular job to be filled, additional features concerning factors such as group insurance coverage, retirement plans, recreational facilities, and the like should be included wherever the employment advertising budget permits.

It is important to acknowledge promptly all replies to an open ad and to hold out encouragement only to those applicants who are to receive serious consideration. All unsuccessful candidates should be courteously advised of their rejection, and photographs and other materials which have been submitted with the letters of application should be returned in every instance in which the applicant has so requested.

MISCELLANEOUS SOURCES OF RECRUITMENT.—There are many other incidental sources which may be explored in securing new personnel. These vary from one community to another, and their effectiveness will depend upon the circumstances of each particular case. Among such sources are labor organizations, fraternal, civic, religious, and social bodies and even penal institutions. During times of great demand for workers, when unemployment has been practically non-existent, firms have circularized their employees and have even resorted to house-to-house canvassing in an effort to recruit needed personnel. In normal times, however, such procedure is neither necessary nor, for obvious reasons, desirable.

Selection of Personnel.—When the personnel officer has secured a group of applicants who might be considered as likely candidates to fill the vacancy described in a requisition filed with him, his next problem is to select from among the applicants the one best qualified for the position. In some organizations the employment officer makes the final selection. In others he makes several selections—any one of which would presumably meet the re-

quirements for the particular position—and refers all to the department head who has filed the requisition and who is empowered to make the ultimate choice. In either event the employment officer's problem is much the same, and in making his selection from among the candidates at hand there are various helpful devices available to him. Certain fundamental characteristics are taken into consideration as a basis for selection. The degree of emphasis placed upon each characteristic depends largely upon the particular position being filled. In the selection of competent office help, the following characteristics are of primary importance: ambition, initiative, cooperation, perseverance, determination, confidence, poise, courage, and a thirst for knowledge.

Among the means available to assemble information on the extent to which applicants have these qualities so that the various candidates may be evaluated on a sound basis, the following are in common use:

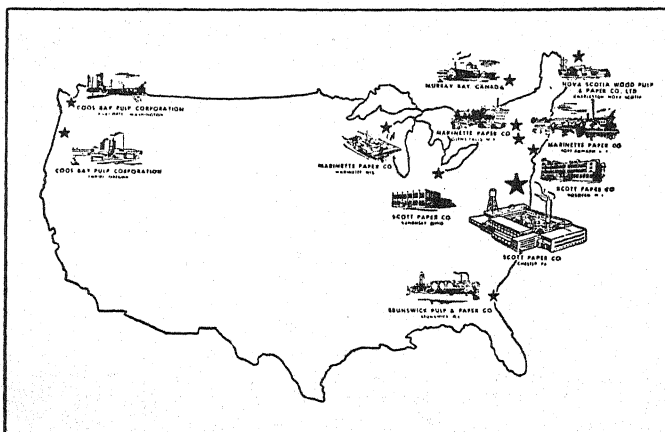
1. The application blank
2. The personal interview
3. The physical examination
4. Contact with references
5. Testing

THE APPLICATION BLANK.—A well-conceived and carefully prepared application blank, when properly used, may be an extremely valuable aid in selection. In addition to the fundamental data which the application supplies, other significant data may be obtained, uniformly, for comparing candidates. Information concerning church, fraternal, social, and other activities is significant in indicating qualities of initiative and cooperation. Earning all or a portion of educational expenses or the necessity of attending night classes suggests more than normal perseverance, determination, courage, and thirst for knowledge. A statement of the previous work record is convenient and helpful information in filling positions requiring practical experience. In some organizations the importance of the application is so well recognized that the completed application is carefully analyzed and graded, and on the basis of the resultant score it is determined whether the applicant will be given further selective interviews and tests.

It is important to review the application form frequently and make any revisions suggested by changing conditions. For example, the growing influence of anti-discrimination groups, with resultant legislation in various states, indicates the need of constant attention to the application form so that it does not offend either as a matter of law or as a matter of fact.

An application form which one company is now using is illustrated in Figures 8a to d. This particular application, it will be noted, provides interesting information about the company as well as requesting all essential information about the applicant. An application in such form not only

APPLICATION FOR EMPLOYMENT WITH SCOTT PAPER COMPANY



PLANTS BEHIND SCOTT PRODUCTS



Figure 8a. Application for Employment Form (page 1)

HISTORY

The Scott Paper Company is the world's largest manufacturer of toilet tissue, tissue towels, and household wax paper.

Founded in Philadelphia in 1879 by two brothers, E. I. and Clarence Scott, it began operations as a very small business engaging in the purchase and sale of coarse paper. Later emphasis was placed upon the sale of a product which became known as toilet tissue.

In 1910 Scott Paper Company established at Chester, Pennsylvania, its first mill for the manufacture of paper and became one of the earliest exponents of standardization in its field. The new plant provided direct control over the manufacturing processes that could guarantee both quality and quantity production.

Within a few years 2,000 different brands were discontinued, distribution and production methods were re-organized, and a few products which showed promise were retained to be manufactured in accordance with the highest quality standards, at the lowest possible cost, and backed by strong advertising.

Proof of the soundness of this policy lies in the dollar sales figures from 1910 through 1945:

Year	Net Sales	Year	Net Sales
1910	\$ 726,264	1930	\$ 8,483,361
1915	1,097,357	1935	10,206,961
1920	2,727,998	1940	20,397,720
1925	3,880,258	1945	37,679,661

OBJECTIVES

Our goal is a \$60,000,000 business by 1955. The comparatively recent acquisition of several plants throughout the country, the addition of new products to our original lines, and the constant development by our organization of new techniques and methods will provide the tonnage necessary to achieve this goal.

OPPORTUNITY

No organization can achieve a rapid expansion without creating more jobs and calling for people within the business to assume more and more responsibility. Opportunities for advancement are, and will continue to be, excellent in all departments.

CONTINUOUS EMPLOYMENT

Since 1922 the Company has been able to maintain a record of continuous employment. At no time throughout this long period have manufacturing operations been shut down because of lack of orders.

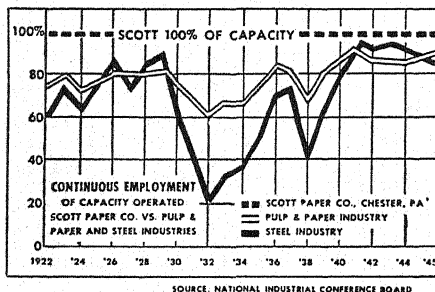


Figure 8b. Application for Employment Form (page 2)

SCOTT PAPER COMPANY—APPLICATION FOR EMPLOYMENT

FULL NAME (Last) (First) (Middle)	TELEPHONE	DATE OF BIRTH	HEIGHT	SEX	SOC. SEC. NUMBER
ADDRESS (Street) (Town) (State)		AGE	WEIGHT	U. S. CITIZEN?	DATE OF APPLICATION

YOUR PERSONAL RECORD

WHAT KIND OF POSITION DO YOU DESIRE? _____ ON WHAT DATE? _____

WHAT SALARY DO YOU EXPECT? _____ IS YOUR WIFE/HUSBAND EMPLOYED? _____

WHAT IS YOUR MARITAL STATUS? _____ NUMBER OF DEPENDENTS AND RELATIONSHIP _____

ARE YOU WILLING TO MOVE TO ANOTHER STATE? _____ WHAT IS YOUR FATHER'S OCCUPATION? _____

DO YOU OWN YOUR OWN HOME? _____ DO YOU OWN A CAR? _____ IF SO, DO YOU CARRY INSURANCE ON IT? _____

WHEN DID YOU LAST HAVE A PHYSICAL EXAMINATION? _____ WHAT WERE THE RESULTS? _____

DO YOU HAVE ANY PHYSICAL DISABILITIES OR HANDICAPS? _____ IF SO, WHAT ARE THEY? _____

HAVE YOU HAD ANY RECENT SERIOUS ILLNESS? _____ IF SO, WHAT? _____

NAME OF NEAREST RELATIVE _____ RELATIONSHIP _____ ADDRESS _____

YOUR EDUCATIONAL BACKGROUND

TYPE OF SCHOOL	NAME AND LOCATION	NO. YEARS ATTENDED	YEAR GRADUATED	MAJOR SUBJECTS	EXTRA CURRICULAR ACTIVITIES
HIGH					
COLLEGE					
POST GRADUATE NIGHT SCHOOL OTHER					

AS A STUDENT WERE YOU ABOVE AVERAGE? _____ AVERAGE? _____ BELOW AVERAGE? _____

WHAT PORTION OF YOUR COLLEGE EXPENSES DID YOU EARN? _____ HOW? _____

SINCE LEAVING SCHOOL HAVE YOU TAKEN PART IN COMMUNITY, CHURCH OR OTHER SIMILAR ACTIVITIES? _____

IF SO, WHAT WERE THEY? _____

Figure 8c. Application for Employment Form (page 3)

YOUR CHARACTER REFERENCES				
PLEASE DO NOT REFER TO RELATIVES			PHONE NUMBER	OCCUPATION
NAME	ADDRESS			

YOUR BUSINESS EXPERIENCE						
NAME AND ADDRESS OF FORMER EMPLOYERS BEGINNING WITH THE MOST RECENT	DATE		YOUR IMMEDIATE SUPERVISOR	YOUR POSITION	AVE Mo. EARNINGS	REASON FOR LEAVING
	FROM	TO				

HAVE YOU INVESTIGATED OUR COMPANY? _____ WHY ARE YOU INTERESTED IN SCOTT PAPER COMPANY? _____

PLEASE LIST RELATIVES EMPLOYED BY SCOTT PAPER COMPANY _____

HAVE YOU BEEN IN THE MILITARY SERVICE? _____ WHEN DID YOU ENTER? _____ WERE YOU HONORABLY DISCHARGED? _____ WHEN? _____

WHAT IS YOUR BUSINESS OBJECTIVE? _____

NOTE: IF THERE IS ANYTHING IN YOUR BACKGROUND THAT YOU THINK WOULD BE OF PARTICULAR INTEREST TO US,
PLEASE ATTACH A RESUME TO THIS APPLICATION

INTERVIEWER'S REMARKS: _____

PLEASE DO NOT FILL IN			
DATE	INTERVIEWER	RATING	POSITION

Form Per 2

Figure 8d. Application for Employment Form (page 4)

serves its purpose of recruiting personnel, but also constitutes a valuable public relations tool as well.

THE PERSONAL INTERVIEW.—Of all the selective devices, the personal interview is undoubtedly the most important. All the other devices—the application form, physical examination, contact with references, psychological testing—are merely supplementary to it. The interview should be conducted in privacy and the applicant should be encouraged to talk but should not direct the discussion. The interviewer should not hurry—he must be well prepared, patient, and show a sincere interest in the matter at hand. He should, if possible, have reviewed the candidate's application form in advance. Such review may afford him a basis for beginning the conversation in a friendly manner and will also make it unnecessary for the candidate to answer questions already answered in the application form.

The interviewer must know in advance what qualities he is interested in finding in the particular applicant. Many interviewers do not wish to rely entirely on their memories to make sure they inquire into each of these and any additional pertinent qualities, and prefer an interview check list of the qualities to be investigated with suggestions as to the type of questions helpful in developing the required information. An example of such a check list, used in the selection of salesmen and serving also as a rating chart, is illustrated in Figure 9.

The check list should be inconspicuous, for example slipped partly under the flap of the desk pad, so that it may be referred to unobtrusively as the interview proceeds. For rating the applicant following the interview, the check list will be of considerable aid to the interviewer as he considers the various qualities upon which the applicant's score is based. In some instances, as noted with respect to Figure 6, provision for a score is made on the check list itself.

THE PHYSICAL EXAMINATION.—The pre-employment physical examination in many cases is regarded as essential. Some positions, even in office work, require definite physical attributes. For example, messengers, who are required to be on their feet much of the time, do considerable walking, and go outdoors or pass through different departments where temperature changes are encountered, must meet more exacting physical standards than the typist or clerk. But in addition a physical examination may reveal substandard conditions indicating that the applicant lacks energy, mental alertness, punctuality, reliability, and other desirable traits, and may not have a cheerful attitude and pleasing personality.

REFERENCES.—Most employers go through the motions of requiring references from applicants, but more frequently than not the references are never used. While the chances of developing anything but favorable in-

INTERVIEW RATING SHEET FOR PROSPECTIVE SALESMEN

This check list is intended as a guide in interviewing prospective salesmen. Unless the prospect receives the highest rating in a majority of the characteristics listed below, it is questionable whether he has the qualifications necessary for success as a salesman. Please rate the prospect immediately after the interview and attach the form to the application blank.

NAME OF APPLICANT.....DATE.....

- | | | | |
|---|--------------------------|------------------|---------------------|
| 1. HEALTH..... |Good |Average |Poor |
| 2. ENERGY..... |Superior |Moderate |Little |
| 3. POISE AND SELF-CONFIDENCE..... |Excellent |Fair |Little |
| (Is applicant enthusiastic or indifferent? Friendly or antagonistic? Forceful or vacillating? Sincere or affected?) | | | |
| 4. APPEARANCE..... |Very favorable |Average |Objectionable |
| 5. VOICE..... |Pleasing |Ordinary |Objectionable |
| 6. SPEECH—EXPRESSION..... |Clear |Adequate |Unintelligible |
| 7. INTELLIGENCE..... |Keen comprehension |Average |Dull |
| 8. PERSEVERANCE..... |Much |Adequate |Little |
| (Try to discourage him. Bring out all the unfavorable aspects of job.) | | | |
| 9. RESOURCEFULNESS..... |Great ingenuity |Adequate |Uncertain |
| (Has he revealed ingenuity in preparing for the interview?) | | | |
| 10. TACT..... |Exceedingly tactful |Average |Lacking |
| 11. AGGRESSIVENESS..... |Effective |Ordinary |Offensive |
| (Does he drive home the sale he is attempting to make on himself without offending you?) | | | |
| 12. AMBITION..... |Much |Average |Little |
| 13. JUDGMENT..... |Good |Average |Questionable |
| 14. BUSINESS SENSE..... |Well-developed |Undeveloped |Lacking |
| 15. PLANNING ABILITY..... |Sound |Ordinary |Lacking |
| (Did he evidence planning and follow-through in his academic career? In his business career? In his handling of personal finances? In seeking this position?) | | | |

What was your GENERAL REACTION to this applicant immediately following the interview?

.....Highest calibre Mediocre Below average

What was your GENERAL REACTION the following morning, after considered reflection?

.....Highest calibre Mediocre Below average

In your opinion is this applicant potentially a top flight salesman? Do you think that he will develop so that he will compare favorably with our strongest District Managers?

Comments.....

Interviewed by.....

Figure 9. Interview Rating Sheet for Prospective Salesmen

formation from the references supplied by the applicant are very slight, facts thus developed will be helpful in corroborating the results of the personal interview and other devices utilized in the selective procedure.

It is advisable, however, to develop reference sources in addition to those suggested by the applicant himself, such as faculty members of the school or college attended by the applicant, supervisors under whom he has previously worked, and civic or fraternal leaders with whom he has probably had contact. No such contacts should be made if they are likely to embarrass the applicant. For example, the applicant's present employer should never be contacted without first securing the applicant's permission. Making inquiries of references by telephone or personal call is far more desirable than by correspondence inasmuch as more complete and confidential information is encouraged by the former methods.

Testing Applicants and Employees

Tests as a Basis for Selections.—There is still no better basis on which to select an individual than an accurate record of his performance on work requiring the same aptitudes and abilities as the job for which he is being considered. In such cases what the individual has done is known. No test or other method of selection has yet been devised which will completely replace such knowledge. When vacancies occur, however, particularly in non-routine jobs, it is seldom that an individual is available who has conclusively demonstrated his proficiency in exactly the same type of work as that for which he is being considered.

In their selection procedures, most companies rely upon an application blank supplemented by personal interviews with one or more individuals. Many studies have been made of the employment interview for the purpose of determining its predictive value. Most of these studies cast serious doubt upon the average interviewer's ability to appraise accurately personal qualities. This deficiency in the personal interview method, however, does not greatly diminish the value of this technique in developing factual information regarding the applicant's education, experience, and personal history. But in employment, interest centers in far more than mere historical information, since the qualities of primary concern are those which determine the ability of the individual to put his education and experience to work. It is in this latter respect that the interview apparently is least successful.

To a certain extent an interviewer's natural weakness in selection may be corrected by means of specially weighted application blanks; by rating sheets on which he can note his impressions by following a list of standard interview questions; etc. Even when this has been done, however, selection by means of the interview alone has proven to be a weak link in the personnel administration program. As a solution, use has been advocated of one or more of

the many pseudo-scientific methods of character and ability analysis, such as phrenology, graphology, etc. None of these methods has stood up under scientific investigation. They should be discarded as useless and dangerous.

In so far as present knowledge goes, tests have been of greater aid in improving selection methods than any other development.

Status of Testing.—No comprehensive data are available regarding the use of tests throughout industry as a whole. However, a recent survey made by the National Industrial Conference Board ² shows that, of approximately 465 companies surveyed, 24% were using trade tests, and 16% were using intelligence tests. No information is given concerning the kind of tests used, and the degree of success encountered with these tests. Probably a better measure of the value of tests lies in the fact that a considerable number of educational institutions, government agencies, and industrial organizations have been using tests long enough for them to evaluate the results obtained.

Among these industrial organizations are the Aetna Life Insurance Company, The Atlantic Refining Company, the General Electric Company, the Household Finance Corporation, Pennsylvania Company, Procter & Gamble, Philadelphia Electric Company, Scovill Manufacturing Company, Southern California Gas Company, Western Electric Company, and others. All of these companies are apparently convinced, from actual experience, that tests are of great value in their personnel administration program. In most cases this conviction is based, not upon opinions, but as a result of scientific evaluation of the results.

What Are Tests?—It is necessary to understand what a test is, how a test is devised, how the results are measured, and the relation of these results to performance on the job. To be of practical use a test must be valid and reliable, and should be given under standard conditions, subject to precise methods of scoring, with results which permit a comparison between individuals taking the test. A test attempts to find out something about an individual which otherwise could be determined or proven only after long periods of actual experience. A typing test that lasts a few minutes attempts to predict the typing performance of the individual when placed on the job. A so-called "intelligence" test attempts to show the degree of mental alertness that will be exercised by the subject under actual working conditions. Similarly, the attitude, interest, or personality inventory tests attempt to show an individual's reaction to people, things, and situations under varying conditions and for extended periods.

There are many qualities which enter into the ability of an individual to perform certain duties efficiently. The inter-relationship and degree to which these qualities are possessed is reflected in the way in which the indi-

² National Industrial Conference Board, Inc., *Studies in Personnel Policy*, No. 23, New York, 1940.

vidual fulfills the requirements of his job. Although many of these qualities cannot be isolated and measured, some tangible results of a combination of qualities can be measured with considerable success, particularly if these results are in the form of demonstrated manual skills, such as typewriting, calculating machine operation, etc.

When going beyond routine mechanical operations, however, and into those types of work in which emphasis is placed upon intelligence, judgment, initiative, personality, and character traits, a much more difficult problem is faced. For one thing, it is impossible, under present conditions, to define exactly or to measure accurately the degree to which these qualities are required on the job. In addition, degree of motivation and character traits, such as honesty, loyalty, industry, conscientiousness, etc. are not as yet subject to systematic measurement, partly because it is extremely difficult to devise tests that will measure these qualities and also because if such tests are devised there are at present no means by which their validity can be established.

Types of Tests.—One type of test generally considered to be most efficient is known as a proficiency test—one in which the individual performs a brief sample of work that requires the exercise of abilities the same as, or similar to, those that he will be called upon to use under actual working conditions. Probably the most useful proficiency tests for selection of certain types of office workers are the stenographic and typing tests. Other tests of this type are used in selecting employees for bookkeeping, accounting, filing, calculating machine operating, and similar operations.

Closely related to proficiency tests are aptitude tests. This type of test attempts to measure the basic abilities which are fundamental to success in a particular field of endeavor. Such tests frequently fail because of the tests, culty encountered in separating inherent aptitudes from acquired skills. been though various companies have developed aptitude tests for their own use, the number of such tests that are available for purchase is limited.

Comparable to proficiency tests, in extent of use and in the degree of efficiency of the results obtained, are the so-called "intelligence" tests. The intelligence is a word regarding whose meaning experts do not agree. In agree. However, Viteles points out the growing acceptance ly make it difficult, "... general intelligence, in so far as it is measured by s. refers to the resources of the individual which determine the de.e of a simcellence in intellectual attainment."³ It is probably safe to assumg test an speaking of intelligence and of what "intelligence" tests attempt to 1 rrectly those qualities are meant which enable individuals to attain underst. words. and knowledge. ll an-

³ M. S. Viteles, *Industrial Psychology*, W. W. Norton & Co., Inc., New York, 1934, p. 128.

While results of "intelligence" tests are not generally as easy to interpret as the results of proficiency tests, they are frequently more valuable in a general testing program, because of the fact that proficiency tests have been developed for only a small percentage of industrial jobs. On the other hand, some degree or level of "intelligence" is a requisite for all types of work, and particularly in the more important jobs such a quality far surpasses in importance any acquired skill or knowledge. Fortunately, there are a number of very satisfactory "intelligence" tests which may be purchased and which, if used with due appreciation of their limitations, become of very decided assistance in improving selection methods and in other phases of personnel administration.

In using "intelligence" tests, there should be a very definite realization of what is required, not only for the job under immediate consideration but for the future as well. For instance, the degree of "intelligence" required in a routine clerical job is relatively low. If it is desired or necessary to keep down labor turnover in such jobs, care should be exercised not to employ individuals whose tests scores are too high, because they will become dissatisfied with the type of work and quit. On the other hand, if as is usually the case, the starting employee, even though placed on routine work in the beginning, is to be considered as material for promotion to higher grade positions, the degree of "intelligence" possessed is a very important factor. In such cases a higher degree of intelligence than is required for satisfactory performance of the immediate job should be required of the individual. For most clerical jobs it is better to hire an individual who is so bright that he may resign because of slow advancement, than to hire a person with no potentiality for advancement.

During recent years, considerable progress has been made in the preparation of reliable administration of tests designed to measure personality traits. Such tests as the Bernreuter, Thurstone, Allport, and the Humm-Wadsworth have been in use for a number of years, and have proven to be of considerable assistance when they have been properly administered and the results have been subjected to expert interpretation. These tests can be used frequently to predict outstanding personality traits which, however, should be interpreted in other ways. The majority of personality tests are of the type which will be formed and in reality are self-rating devices. Consequently, they may be distorted either voluntarily or involuntarily by the person taking the questions. Other technical difficulties also exist which limit the effectiveness of these tests.

Personality tests such as those mentioned are generally scored by comparing the responses of the individual with those of a large group of selected well-known individuals who served as subjects when the test was developed. Outstanding scores, either high or low, are considered as indications of traits which may result in emotional maladjustment. It is easy to

misinterpret the result of these tests, and persons without knowledge of testing techniques are urged to approach their use with caution.

Attempts to measure interests of applicants and employees offer another wide and fertile field in testing, and some mention should be made of this phase of individual appraisal. Questionnaires, such as the Strong Vocational Interest Blank, serve to compare the responses of those who fill out the blank with the responses of many other individuals in various fields of endeavor. Often significant differences develop which may serve to indicate a preference for clerical, sales, engineering, or some other field of endeavor. If one believes that a man does his best work in the field in which he is interested, the importance of this aspect of measurement cannot be overemphasized.

Attempts have been made from time to time to devise tests to measure honesty and the other character traits. Little success has been achieved along these lines and it appears that they have not been developed sufficiently to warrant discussion here.

Test Development.—Before a test can be devised with any degree of efficiency, a careful analysis of the job for which employees are to be selected should be made. Much of the success in current test development may be credited to job analysis, and much of the failure in past test programs undoubtedly can be blamed upon failure to take this preparatory step. Job analysis, when properly done, will show what qualities are essential for efficient job performance. Systematic methods of job analysis such as Viteles' job psychographic method ⁴ will serve to indicate clearly these outstanding qualities. Tests can then be selected or devised which are designed to measure these qualities.

It is extremely dangerous to put reliance in results obtained from tests, regardless of how ingenious the tests may appear, until the results have been compared with actual ability. Some of the most promising tests have proven to be practically worthless as tools for the selection of employees. This failure is due, in part, to the difficulty of segregating the qualities essential to efficient performance even though job analysis is used and, in part, to the difficulty of measuring these qualities when demonstrated on the job. In addition, difficulties encountered in test construction frequently make it difficult to devise a suitable test.

The difficulties mentioned above may be exemplified in the case of a simple spelling test to be given to stenographers. In one type of spelling test an individual is given a number of words, some of which are spelled correctly and some incorrectly, and asked to check off the incorrectly spelled words. In another type of spelling test the words are read to the applicant. Still an-

⁴ Jay L. Otis and K. R. Smith, "The Job Psychograph in Job Analysis," *Occupations*, Vol. 12, No. 10, National Occupational Conference, New York, June, 1934.

other type of test uses phonetic spelling and requires the testee to spell the word correctly. All of these tests are designed to evaluate the ability of the individual to spell on the job, and the tests in reality are short samples of the actual work.

On the surface it would appear that all these tests should be rather successful in selecting individuals who can spell accurately and in rejecting those who do not spell accurately. But in actual work, the number of spelling mistakes made by a stenographer is affected by three different conditions: first, the actual ability of the individual to spell correctly; second, the words which she is called upon to spell, which will differ with different dictators and various types of work; third, the degree of caution exercised by the stenographer in looking up questionable words to make sure of the correct spelling. It is evident that, under exactly similar working conditions, a good speller will compare very favorably with a poor speller. On the other hand, a naturally poor speller may appear quite efficient if the dictator uses simple words, and particularly if the stenographer has the habit of looking up doubtful words in a dictionary.

Because of these facts, it is very difficult to measure the real spelling ability of different individuals on the job. Without a measurement or some other criteria, there is no way of ascertaining the value of any of these tests. Probably the difficulties mentioned might be overcome if the necessary effort, time, and expense could be economically justified. The example serves, however, to indicate the obstacles encountered in obtaining satisfactory criteria and their importance in test development.

In the case of some tests, recourse may be had to production records. A highly accurate criterion is thus obtained for comparison with test results. In many other types of tests, however, such as the spelling tests mentioned above, production records are not available and recourse must be had to ratings which are less accurate measures, with the result that it is impossible to be sure of the actual efficiency of these tests. In addition to ratings and production records, there are also other types of criteria such as promotion records, salary increases, etc. which are used with varying degrees of success.

MEASURING THE VALUE OF TESTS DEVELOPED.—When satisfactory criteria have been obtained they should be used to measure the value of the tests. Tests that satisfactorily discriminate between the successful and unsuccessful job holders will show a high positive co-relationship with the criteria. That is, individuals who are most efficient on the job will receive the high test scores. Likewise, the least efficient employees will make low scores on the tests. Even in the best of tests, there will be some exceptions to this principle, but when the number of exceptions becomes too great, the test obviously is worthless as a predictor in that situation. Figures 10 and 11 show

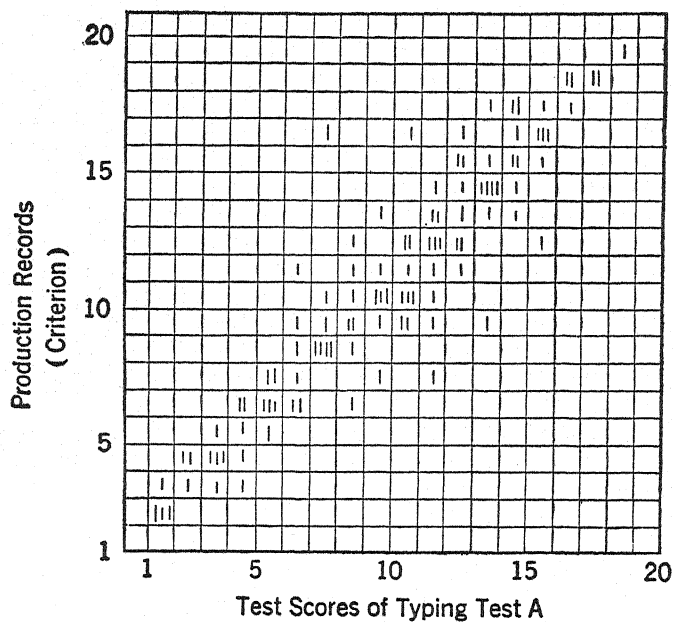


Figure 10. Example of High Co-Relationship

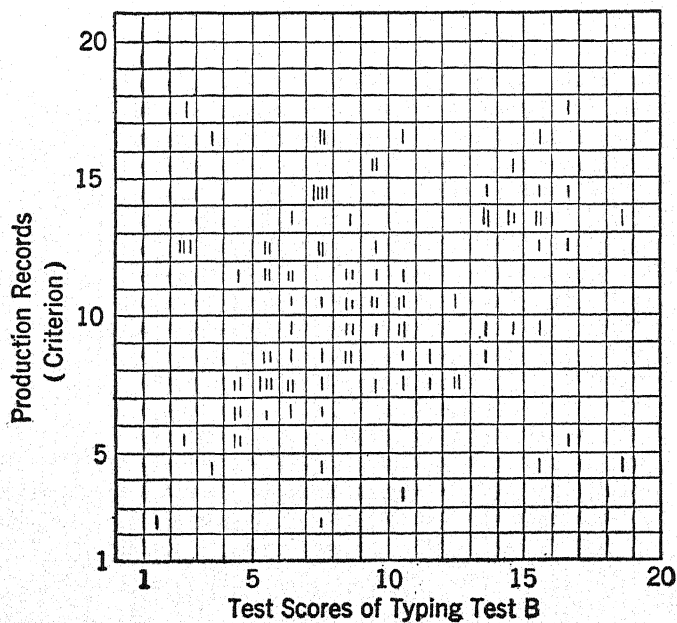


Figure 11. Example of Low Co-Relationship

a hypothetical relationship between production records and test scores of two different typing tests. In Figure 10 there is an exceptionally high relationship between the criterion and the test results, indicating that the test should be very satisfactory. The example in Figure 11, on the other hand, shows a co-relationship so low that it is readily apparent that the test cannot be relied upon as a satisfactory predictor.

In many situations, this method of test standardization cannot be used since it requires records of job performance on a large number of individuals. Lacking such information, the following method may be used: (1) employees are hired by existing methods, and the various tests under consideration are administered only after the selection has been made; (2) records of the efficiency of the individuals selected are kept and, after a sufficient number of cases have been examined, are compared with the test scores; (3) only the tests that show a high positive co-relationship with the performance records are used in future selection procedures.

When neither of the above methods is practicable because of factors such as limited number of employees, small turnover, or lack of satisfactory criteria, tests may be employed successfully in a manner comparable to methods used in psychological clinics.⁵ However, only competent industrial psychologists or others thoroughly trained in test techniques are qualified to evaluate the results of tests used in this manner.

In test construction the importance of the criteria must be appreciated. Actually the best tests that are constructed today are carefully standardized against criteria, and in most cases each item or question in the test is also subjected to a searching investigation of its predictive value.

Once a test has been proven by these methods, it may be called a valid test. If a test score of 60 were to be selected arbitrarily as a "passing mark" or critical score, 94% of the superior employees, 70% of the average employees, and 18% of the below average employees would have been hired in an actual case. If the critical score had been raised to 80, the selection would include 63% of the superior workers, 38% of the average workers, and none at all of the below average workers. This is a striking example of the manner in which a test can be used in selection procedure. Unfortunately, many tests available for general use are not, or never have been proven to be, valid in an industrial situation. Consequently, they are of limited value.

There is another very important condition essential to the success of a test. This is its "reliability." By reliability is meant the consistency with which the test measures the same thing. With a test having a high index of reliability, an individual may be expected to get approximately the same score, regardless of when he takes the test. If a test has a low index of

⁵ National Industrial Conference Board, Inc., "Experience with Employment Tests," *Studies in Personnel Policy*, No. 32, New York, March, 1941, p. 42.

reliability, the test score made by the individual will vary from time to time. The importance of the reliability of the test may be seen by comparing it with a spring scale. It is readily apparent how worthless a scale would be if it were to show $2\frac{1}{2}$ pounds one time a chicken was weighed and 2 pounds or 3 pounds the next time the same chicken was weighed. To be worth anything, the scale must register the same weight, regardless of when the same chicken is weighed. The same consistency of measurement is required of a test.

By various statistical methods, the efficiency of tests can be measured with a relatively high degree of accuracy where the abilities or characteristics to be tested are themselves subject to relatively accurate measurements.

Use of Tests in the Office.—In offices, tests can be used to advantage in three different ways. First, they can be used successfully to eliminate a

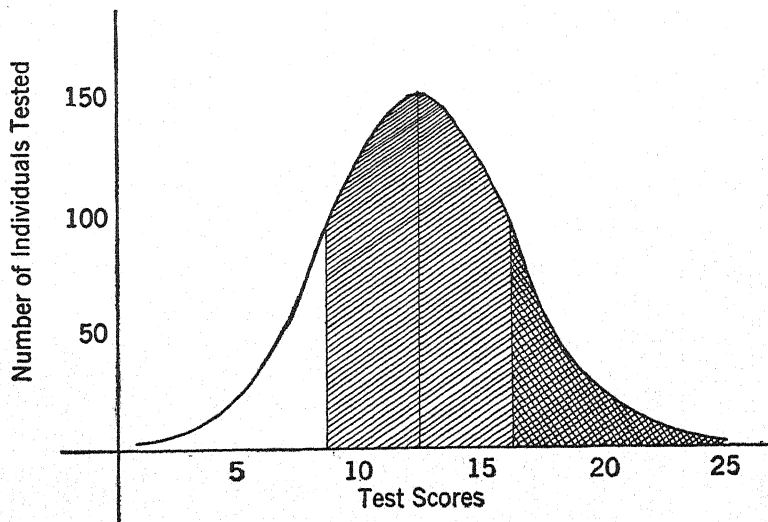


Figure 12. Distribution of Scores Resulting from Administration of Hypothetical Test

large percentage of the unqualified applicants who apply for positions. The percentage of those eliminated will, of course, depend upon the calibre of the applicants and the standard set by the particular company. Since a test score that indicates satisfactory performance in one company may represent below average performance to another, it is important that companies, in using published tests, even though they be well standardized elsewhere, exercise great caution until they have set up their own standards. Figure 12 illustrates the distribution of scores resulting from the administration of a hypothetical test. In this illustration, it is assumed that all individuals whose test scores fall in the shaded sections are capable of successfully per-

forming the duties required in a particular job. It will be noted that there are far fewer individuals with high test scores or with low test scores than there are individuals with average test scores. Assuming the test to be a good predictor, the chances of employing satisfactory workers will be increased if the selection can be restricted to individuals having test scores in the heavily shaded section.

Undoubtedly some of the applicants rejected by tests might prove satisfactory if given an opportunity in the job. Their rejection is unfortunate, but justifiable in view of the volume of applicants. At least it is apparently sounder policy to reject occasionally a good applicant than to increase the chances of selecting unsatisfactory applicants. Of course, not all the individuals who pass the test will be satisfactory employees since the tests do not measure all aspects of success on the job. Some of these potentially unsuitable individuals may be eliminated by means of the personal interview, references, etc., and thereby the chances of hiring an inefficient applicant will be somewhat further reduced.

Second, tests may be used to select employees for transfer and promotion. In such cases an employer is not justified in rejecting an employee for promotion solely because he fails to meet a certain test standard. In considering employees for transfer and promotion, not only should the test scores be used, but also it is necessary that the answers to the individual questions in the tests should be analyzed in order to discover whether the results are really indicative of the ability of the individual.

Such an analysis of the test may develop the fact that a poor score is due in part to a single weakness, as in the case of an individual who is poor in mathematics but who may possess all the other qualifications for success. On the other hand an individual with very high test scores may be lacking in important qualities which the tests do not measure. In the case of an employee, these factors may be discovered by an examination of his employment record. It is important, therefore, that such a record should include supervisors' ratings, accurate performance records, and other pertinent information.

Third, tests may be used in vocational guidance. In some cases an individual may be found to be entirely unqualified for office work. In other cases a lack of potentiality for advancement may be discovered and tactfully pointed out to the individual so that he will not be repeatedly disappointed when he fails to obtain promotion. Certain deficiencies in education may be discovered which can be corrected by correspondence or night school courses.

Some Common Criticisms of Tests.—Many criticisms of tests are raised, particularly by those unfamiliar with test techniques. The most com-

mon criticism refers to the individual who is so nervous or so ill at the time he takes the test that he cannot do himself justice. Thousands of individuals have been examined, among whom have been many so-called nervous individuals and, in most cases, no significant relationship between nervousness and the test result has been found. When a nervous individual makes a test score which is seemingly inconsistent with his actual ability, it is frequently found that he cannot work satisfactorily under pressure. It is extremely doubtful that the use of tests results in any real injustice to the nervous individual, except in very rare cases.

Occasional opposition is expressed by employees. In many cases such opposition comes from individuals who are none too able and who, in voicing their opposition, are consciously or unconsciously admitting their own inabilities. Such opposition may be a real obstacle to a testing program. It can be overcome only by honest and diplomatic discussion of the strong and weak points of tests. Probably the best defense is that the tests supply certain information which, when corroborated by the individual's employment and educational record, may be of mutual advantage to both company and employee. It is important to point out that while tests may call attention to what are apparent weaknesses, the evidence must be supported by actual analysis of the individual's work, and will not be regarded as factual on the basis of test scores alone. An advantage to the employee is that tests can be used to indicate potentiality for transfer or promotion, although here again they should be used in conjunction with all other available information.

The office manager contemplating the use of tests should follow certain precautions:

1. It is highly inadvisable to try to devise tests independently.
2. Unless there is someone in the organization who is qualified by education and training to handle a testing program, some qualified individual or organization should be consulted. Many of the large universities have psychological laboratories from which information may be secured. Most of the companies engaged in test research are glad to offer advice and assistance as well.
3. If it is decided to obtain a psychologist to handle this work, be sure that he has had industrial experience. Many psychologists, while well versed in the technicalities of their profession, are woefully ignorant of the practical aspects of business. Therefore, unless carefully guided, they may be the cause of misunderstanding and discontent among the employees.
4. If the number of employees is small, the probabilities are that it will be impracticable to have a test expert on a full time basis. In such a case, recourse may be had to organizations like the Psychological

Corporation or to individual industrial psychologists who, on a consulting basis, will satisfactorily work out the problem of the individual company.

5. The results obtained by tests in some particular organization will not necessarily be duplicated in another company using the same tests.
6. The installation of a test program is not an overnight proposition, even when one's company is willing to spend money to get the best advice obtainable. Generally it takes months and possibly years, before the full results become apparent.

Progress is steadily made in the improvement of tests, and they are increasing in use and value as tools that can take much of the guesswork out of the employer's selection program.

Placement

The Problem of Placement.—Through the use of job analysis, description, specification, psychological and trade tests, and interviews, the employment interviewer endeavors to select the right applicant for the job available. Where these techniques and instruments are used properly by a capable interviewer, the selection results are fairly good.

None of these devices, however, is capable of measuring the emotional nature of the applicant or revealing the full nature or extent of his likes and prejudices. Thus an applicant may be, and often is, hired for a job for which he appears to have the basic qualifications, and sooner or later decides that the work is uninteresting, distasteful, or not what it was represented to him to be, or he "just doesn't like the job." If he cannot be transferred to a more suitable type of work, he is likely to resign. If he stays on the job, his dissatisfaction grows, affecting his performance and in many instances his relations with other employees. Such a condition, in turn, may affect their relations and satisfactions with their jobs.

This is the problem of placement. It is a difficult problem from all points of view. There are a number of reasons why it cannot be completely solved at the time of placement. First, the worker does not always know what type of work he wants. In far too many cases, he fixes the responsibility for his proper placement on the shoulders of the employer and then fails to give constructive assistance so that the task may be well done. The truth is that in too many cases the employee has not given sufficient thought to the problem as it affects him. He is therefore unable, through lack of previous experience or analysis, to indicate with conviction the field in which he believes he will be satisfied and can best focus all his talents.

The Need for Counseling Service.—The fact that the employee is uncertain as to his field of interest points up sharply the urgent need for

counseling or guidance services to which he can turn for assistance. Some of this type of work is already being done by progressive companies, and thoroughly tested procedures have been worked out for the purpose and are available for application. Much of the assistance given to date, however, has been rendered by outside institutions whereas it should be furnished by the employer. He, instead, has been interested chiefly in securing the required number of qualified workers to keep his business going, and he anticipates, and is not alarmed by, high turnover. He, therefore, too frequently fails to investigate the causes of turnover and does nothing to improve selection and placement and furnish counseling, through which the rate of labor turnover can be materially reduced.

Finally, interviewers themselves require thorough training, and further attention should be given in the individual company to the development and application of psychological instruments which will provide more comprehensive and accurate information on applicants. Those who interview not only applicants for jobs but also employees who are interested in changing their jobs should themselves be carefully selected and receive the best and most thorough training possible, including the use of psychological aids in their work.

Factors in the Solution of the Placement Problem.—The ill effects of poor placement are not confined to labor turnover, low employee morale, reduced output, and various other industrial outcomes,—they reach out into the very heart of the national life as well. There is a wealth of evidence to show that delinquency, crime, and many other social evils are intensified by the fact that many people whose work experiences have failed to bring them the satisfactions they seek have turned to anti-social means of securing these satisfactions. Therefore, parents, educational institutions, and civic agencies should recognize and accept their full responsibility in the matter. If, through observation, study, discussion, tests, and consultation, these agencies can make the individual aware of the problem of suitable occupation and its importance, and provide answers to at least some of the questions involved, they will have performed a useful service for business and industry.

THE EMPLOYER'S RESPONSIBILITY.—The employer, in his turn, must use the most scientific means of placement at his disposal, and recognize the problem as one in which his own selfish interests demand that he go well beyond usual employment practices to solve. The techniques already mentioned are available. In addition, he must provide adequate channels through which present employees may have an opportunity to express their work preference and, when possible, be given an opportunity to try out new jobs. In other words, original or subsequent placement should not be made always on the basis of expediency. Management should propose

transfers but employees should be permitted to request them as well. Original and subsequent placements should be verified by careful periodic follow-ups. Temporary transfers of poorly placed workers should be made in an effort to find more suitable spots for these employees.

The personnel office should be in a position to counsel with workers who should know this and have opportunity to make use of such services when desired. The counseling should not be an incidental matter, handled by whoever happens to be free when an employee comes for consultation. Those who are to do the work should be carefully selected for it and given thorough and adequate training in the most advanced techniques and methods for the purpose.

THE INDIVIDUAL'S RESPONSIBILITY.—Lastly, the individual must be sufficiently interested in his own accomplishment and future to be willing to assume the major responsibility for finding out what he is best suited for from all points of view, and to work toward that end. He can do much through reading and study, particularly the study of the lives of successful men and women and the characteristics and requirements of different occupations and businesses. He must be willing to analyze himself from time to time in an honest and thorough fashion and he must frequently examine his progress and his changes in his attitudes. A vast waste of human energy in business is caused, in part at least, by the failure of workers to find and take the job opportunities which would call forth the highest use of their talents, and to which, as a result of the satisfactions derived, they would give most generously of their abilities and strengths.

Induction

The Induction Period.—Induction is best defined as the introduction of a new employee into the office. The impressionable period spent in induction offers an excellent opportunity to lay a solid foundation for developing a satisfied and loyal employee. This is the time to establish the correct relationship with the employee and get him off to the right start. Almost every new employee is rather emotionally disturbed, subject to nervousness, and likely to jump to conclusions and obtain false impressions, but is open to constructive ideas and suggestions. It is very important to let him know exactly where he stands and help him maintain his equilibrium by setting him at ease. He will usually then become an asset to the company and feel that he is a part of it.

STEPS IN THE PROGRAM.—When the new employee reports for work, his supervisor should invite him into his office for a review of the points that were brought out in the original interview. This conference should not be rushed but instead should allow ample time to cover all details com-

pletely. It is within the supervisor's power to create a positive impression for the employer and his responsibility is to be sure the employee receives accurate information. The supervisor should refresh the employee's memory regarding admission to the building, punching his clock card, and the company's working hours, lunch period, rest periods, group life insurance, vacation privileges, his compensation (paying dates and how much), etc. He should also give the employee an opportunity to ask any questions that may have occurred to him since his interview. Finally, the supervisor might also make arrangements for him to go to lunch with a fellow worker who would further introduce him into the organization and also have a beneficial influence on a new employee.

TOUR OF OFFICE AND PLANT.—The new employee should be taken on a tour of the office by his supervisor or someone who knows the different departments and their functions and is well qualified to instruct the newcomer. In any case, this orientation should not be handled by an ordinary office employee who might pass over important details too lightly, or might not be qualified to cover his responsibility. The supervisor knows what information should be given to the new employee at once, and what details might be confusing and could be left unexplained until the employee has had some actual experience with the company.

This tour will give the new employee an opportunity to see the departments in operation and other employees at work. This is the time to foster an appreciation of the company. The supervisor can point out the different individuals who have been with the company for some time. The fact that employees are content to stay with an organization for several years is the best advertisement it could have of sound personnel policies. The knowledge of that fact will create within the new employee a sense of respect for his employer. Respect is a "must" for a permanent employee.

The new employee should be introduced to the various supervisors and to any other employees with whom he will come in contact daily; but too many introductions at this point, however, would be confusing. While it will probably not be possible to introduce him to the company officers, he should be told who they are and where their offices are located.

If the company is in the manufacturing business, the new employee should be taken through the factory so that he can see the manufacture of the products with which he will be dealing. He should know the kinds of machinery used and be encouraged to ask any and all questions concerning the manufacture of the products. Perhaps there is nothing more interesting than the actual "creation" of a product.

USE OF A COMPANY MANUAL.—Verbal explanations and new contacts will result in some confusion to the new employee, so it is necessary to give him a certain amount of printed information which he can study. A com-

pany manual is one of the most effective ways of acquainting the new employee with the business. The manual should be given to the employee at the end of the first day, to be read at home.

While a number of topics are covered in such a manual, some are more important to the new employee than others. Therefore those which will help him most in his work should be called to his attention. The following sequence is suggested.

1. The history of the particular industry. Every loyal and alert employee is interested in this. He wants to know when it was first developed, the various stages through which it went, the many discouraging obstacles which have been overcome, and the way in which success was achieved.
2. In order that the new employee will have a well integrated background on which to work, he should have some knowledge of the people responsible for its present status.
3. The business as it is today. It is only natural for a new employee to be interested in securing answers to such questions as: Where does my company rate in the industry? How does my company's industry fit in with other types of industry?
4. Company rules and regulations. Such rules cover the company's practices regarding absences, errors, personal mail, personal telephone calls, personal conduct, holidays observed, etc.
5. Company-sponsored social activities. In most companies there are certain activities, e.g., bowling, choruses, orchestras, etc., which may make an important contribution to employee morale.
6. Dictionary of technical terms pertinent to the particular industry. Such information usually appears at the end of the manual.

GROUP INDUCTIONS.—In large companies where several new employees go through the induction process under the same supervisor, it is advantageous to group them for certain phases of their indoctrination. The tour of the office building and plant could be made by groups for time saving; but it may be desirable to handle much of the remainder of the program individually. As a general rule, a new employee asks questions more freely if the necessary interviews are conducted privately.

One day of the week may be set aside on which to have new employees report to work, thus making the group induction portion of the program convenient to handle. The company manual might be reviewed with the new employees as a group to see that they understand it thoroughly and to give them an opportunity to ask questions. In this way they will acquire a practical conception of the rules and regulations.

If the new worker is interested in any of the company-sponsored activities, it would be well to arrange for some fellow worker to take him to

these meetings. In no case should a new employee be put under pressure to join in these activities.

The employee should now have a sound foundation on which to begin his job training. The new employee should be assured that he is welcome to come to his supervisor's office at any time for discussion of his work, or to the personnel office for information and guidance on matters of particular individual concern. It is good practice for a personnel representative to talk occasionally with the new employee until he becomes thoroughly adjusted. In such contacts the personnel man should in no way interfere in the relations between the employee and his supervisor, but confine himself to those relations concerning the company as a whole. The time spent in properly inducting an employee will be saved many times over when he is fully developed into an efficient, understanding, and cooperative member of the organization.

CHAPTER 4

PERSONNEL CONTROL FUNCTIONS

The Training of Employees

What Is Employee Training?—Training of employees can be defined as the conscious direction of their learning activities in order that they may work as effectively as possible. It is a basic operating activity.

One supervisor may give a new job to an employee with no instructions. Another supervisor may demonstrate part of the job and then instruct the employee to complete the work. A third supervisor will explain the purpose of the job, outline the steps to be taken and demonstrate some of them, and question the employee in order to ascertain how much he knows about the job and what he needs to be taught. This same supervisor will then carefully observe and guide the employee as he performs the work until he has learned what is to be done; why it is to be done; how it fits into the rest of the company's operations; when it is to be done; and, above all, how it is to be done. As the employee continues to work at the job, the supervisor will exercise sufficient supervision over him to be sure that he is doing the work in accordance with the instructions.

The first two situations imply a species of learning, but only in the third illustration is the learning activity of the employee directed. Briefly, direction by a supervisor of an employee's learning activities implies:

1. Providing necessary information, data, illustrations, tools, and equipment.
2. Explaining and demonstrating the processes to be used and the reasons for using them.
3. Observing the employee as he does the work and ascertaining how well he understands the instructions, and is learning to do the job.
4. Giving such additional instruction and supervision as may be necessary until the employee is acceptably proficient.

Why Is Training Carried On?—Business concerns carry on organized training activities for three chief reasons.

1. Trained employees work most efficiently, with the minimum expenditure of time and energy. Suitable equipment and definite, well-developed procedures decrease such expenditures only when em-

ployees know how to use the equipment and methods and do use them.

2. Trained employees are likely to have good morale. They have confidence in their own ability and skill; and are likely to have pride in their jobs and a sympathetic understanding of the problems of their organizational unit and the company as a whole.
3. Because of their superior knowledge, skill, and morale, trained employees are likely to comprehend the desirability of improving operating practices and conditions. They are disposed not only to cooperate with the management in such efforts as making motion studies, or trying out experimental procedures, but also to contribute valuable suggestions of their own.

Employees must learn many things on their own initiative, but they need help and direction in order to :

1. Learn effectively and in a reasonable length of time. The trial and error, or experimental, method of learning is expensive in time and energy, and ineffective for most people.
2. Learn all the details of a job and be able to perform their share of it. Without direction, an employee is likely to learn only part of an operation.
3. Develop the proper methods of doing work. An employee left alone is quite likely to misinterpret the established procedure and to develop his own ineffective methods. He needs to be shown how to lay out his work, how to perform the necessary sequence of operations, why the sequence has been established, and how to manipulate his equipment so that it produces the desired results with a minimum expenditure of energy.
4. Maintain their morale. An employee unable to do his job effectively may become discouraged because of a feeling of frustration or ignorance. If he does not receive reasonable and adequate help, he may feel that his job is unimportant and not worth any special effort on his part.

When Is Training Necessary?—There are four typical business situations in which employee training is needed.

1. An employee new to any group must receive some training in order to fit into the group and to perform his duties satisfactorily. If he is new to the company, he needs to know the rules and regulations pertaining to employees and such information about the company as the nature of its business, its general organization, and its standards of operation.

2. An employee must be trained in the use of new procedures or methods. The training may require only a modification of present practices, or may require a complete unlearning of them and the development of an entirely new set of practices and habits.
3. An employee making more than a reasonable number of errors needs retraining to break bad habits, and to reestablish correct practices.
4. Employees who are potentially promotional material are worthy of training in preparation for higher jobs.

How Does Training Take Place?—Three basic principles seem to underlie the activity of learning by anyone.

1. He must desire to learn. Learning requires effort, and the desire to make this effort must be created through personal interest. Economic pressure or a natural desire to do a good job may act as a stimulus, but is not always enough. The trainee must recognize the necessity for learning each specific step and the advantages to be gained thereby; and these advantages must be at least partly personal to him.

2. He must be ready to learn. His previous training must have brought him to a point from which he can proceed. He must not be emotionally disturbed or otherwise distracted, for distractions of any kind will make learning difficult, if not impossible.

3. He must do those things which will cause him to learn. An instructor cannot open his head and pour in a quantity of knowledge or skill, but can only guide him. He himself must go through the necessary mental and physical activities that will cause him to learn.

These basic principles of learning lead to three basic steps in instruction, which have been called, "Make Ready," "Do," and "Check Up."

1. The *Make Ready* comprises the preparatory work for the actual learning activity. It includes the preparation of the instructor who must know what is to be taught, why it is to be taught, when it is to be taught, how to teach it, and to whom he is to teach it; the preparation of the employee who must want and be ready to learn; and the preparation of the necessary material and equipment such as written procedures and forms, classrooms, and other physical properties.

2. The *Do* in instruction comprises the actual instructional contact between the instructor and the employee. The instructor must remember that the employee is the one who is doing the learning, and he can learn only through his own activity. The instructor can talk, he can draw, he can write or demonstrate; but, whatever he does, he must see to it that the employee takes the necessary corresponding action, which is to listen, to observe, to analyze, and to do. Teaching implies reciprocal action and it is the instruc-

tor's job to so stimulate the employee that he will go through the necessary personal activity.

3. The *Check Up* on the employee's learning activity should be made continually, but the final tests take place on the job. Here the instructor must observe the activities of the employee carefully in order to determine to what extent and in what direction any necessary supplementary instruction should be given.

Planning a Training Program.—Training put off until the need for it is imperative is likely to be poorly organized and relatively ineffective or inefficient. The training program should be planned for some time in advance, revised periodically, and put into effect in a succession of training courses or activities.

RECOGNITION OF A FUNDAMENTAL NEED.—At least six operating conditions indicate one or more of the four types of needs previously mentioned. These conditions should be watched for and anticipated.

1. Studies of ways and means of reducing operating costs almost inevitably result in new procedures or a reallocation of work.
2. An increase in the frequency or severity of errors or accidents calls for immediate action.
3. A large turnover of personnel necessitates the development of people to fill higher positions and the induction of new employees. It may also force the development of new procedures and the redistribution of work.
4. When work expands in volume and complexity, present employees have to be further developed and new employees brought in.
5. When work is slack or an organization is contracting, an employee can be used to the fullest advantage only if he is trained to do several jobs—in other words, for versatility.
6. An office can meet emergencies, such as an abnormal flow of orders or an abnormal amount of sickness, only if it has trained its employees to perform a variety of duties.

FORMULATION OF A PROGRAM.—When the need for training has been determined, a general program should be planned. It may consist of any number of specific courses or training units, but it should be started with one or two of these, the development and usefulness of which should be observed carefully. Other courses can be added as fast as they can be developed and accepted by the employees.

The first step in the development of the program is the definition of the need in terms of general objectives. These general objectives should be formulated through discussion among the people concerned with the pro-

gram, and in their final form they should be used to test all subsequent steps in the development of the program.

Four tests for a training objective have been found to be useful: desirability, understandability, attainability, and evaluability.

1. The objective must be desirable not only from an organizational or management point of view, but from the employees' point of view. Many questions are asked by employees when training is proposed: How much effort will the program take? Will it result in layoffs? Will it result in greater opportunities? Will it make the work easier? Unless the objectives are formulated so that the program will be desirable to the employees, they will consciously or unconsciously sabotage it.
2. Unless all people concerned can understand the objectives, they will not be likely to accomplish them.
3. Unless there is some possibility of achieving the objectives, the people concerned with the program will consider it futile and will be unable to carry it on effectively.
4. Unless the results are measurable in some way, the people concerned with the program will not know whether or not they are moving toward the objectives.

REVISION OF THE TRAINING PROGRAM.—Although a training program is a long-term affair and can quite profitably be established for several years in advance, revisions in it will be almost inevitable. Some detailed objectives can be reached more quickly than was anticipated and others will require more time. Some training courses will need to be added and others, which have served their usefulness, withdrawn.

An excellent practice is to review the program at least annually and whenever important new conditions arise. So administered, a training program can become a continuous source of development and improvement to the entire organization.

Organizing and Conducting a Training Course.—A training course is a unit within a training program. It should be organized to accomplish specific results with specific employees.

SPECIFIC OBJECTIVES.—The first step in the development of a training course is the analysis of the need for it and the definition of that need in terms of specific objectives which should be explicit, and should be tested against the four measures suggested for a general objective under "Planning a Training Program." As a rule, the objective is to accomplish a specified result with a specified group of employees who are in a determinable state of preparation. For example, to reduce the number of errors per hundred units of work in Group X, which comprises employees with a high school

education and a minimum experience of two years in the group; or to put into effect a new procedure in Group Y, the employees of which have been using the present procedure competently and have a fairly broad background and knowledge of general company operations.

TIME FACTORS.—The course objectives affect and are affected by the time factors to be considered. For example, the training for a specific group may have to be given within a week with training periods of one hour a day, or within a month, with two hours a week devoted to it. Such limitations should be decided upon in the first stage of organization, so that the rest of the plan can be developed to fit them.

Whether the course will be conducted on company time or employee time must also be decided as a general principle. Training activities which relate specifically to the job and which must be participated in by all employees concerned must be given on company time. Developmental courses, which are largely for the employees' benefit and in which participation is not obligatory, may be conducted on employee time. No company should plan to give employee-time courses, however, without first obtaining competent advice about the application of various federal and state laws.

At what hour of the day a course is to be conducted can be determined only by local conditions. Successful classes have been conducted from the hour before work starts to the early evening. Attention is not so much a factor of time as of interest and freedom from distracting influences and, with office employees, fatigue does not necessarily influence the choice of time. Therefore, the choice of the hour can depend upon local convenience.

TRAINING METHODS.—Four basic training methods are in common use: lecture, demonstration, discussion, and practice work. No one of these should be used to the exclusion of the others and, as a rule, all should be used in every session.

Lecture and demonstration go hand in hand as a way of initially explaining to the employees what they are to learn.

Discussion is a means of clarifying the employees' understanding. It should be ample and should include some of the background of, the reasons for, and the consequences of the procedure being taught.

Practice is most important of all, and employees should be given the opportunity to perform the actual details of the procedure, such as extending or posting data on standard forms, or operating office equipment under a variety of conditions.

Many specific methods of training arise from these basic methods and principles. The successful methods have one condition in common—the employees' acceptance of them. Employees generally dislike wasting their efforts, even on company time, and they resent instruction which they consider to be too simple, or beyond their comprehension, or otherwise ineffective. If

the employees' reaction is unfavorable, the method should be modified or dropped in favor of a more acceptable one.

The essential features of any training method are that it shall include employee activity and practice, be acceptable to employees, be under competent supervision, and satisfy the company's needs.

CONTENT AND TEXT.—The content of a course may be developed in outline form only, if the employees or the instructor can be depended upon to supply the missing details; but usually some form of text is desirable as a basis for instruction and as review and reference material.

Any text material used should be designed for, or appropriate for, the employees being trained. If it has been prepared for some other group and must be constantly modified, it is unsatisfactory because of the uncertainties in its interpretation. Text material should be written in clear, concise "office" English, so that the employees who use it will understand it and will not be distracted by the use of unusual terms. It should be brief but not at the expense of being clear. Illustrations should be used freely and exhibits of actual forms or reproductions should also be included.

If a procedure is to be taught, the written procedure itself becomes the text. If the procedure has not been defined in writing, a text should be prepared, usually in such form that it can be used subsequently as a procedure, since employees will be disposed to regard it as such. If the operation of office machines or other equipment is to be taught, manufacturers' manuals can frequently be used as text material, with possibly some supplementary elaboration in the form of mimeographed sheets.

In the determination of course content, outlining is the first step. Although this is one of the most difficult tasks to be undertaken by the amateur instructor, it is essential if the instruction is to be effective. If text must be written, careful development of an outline will save much time in its final preparation. Even if a published textbook has been chosen for the course, it should be outlined in small units, each comprising the material for a single period. The outline should include not only all topics to be developed, but also a separate list of all supplementary material needed to make the instruction effective, e.g., forms, booklets, pictures, charts, lantern slides or slide films, motion pictures, or transcribed talks.

After the course has been outlined and the text procured or prepared, each instructor should develop in considerable detail a lesson plan for each period. The lesson plan contains in serial arrangement every step the instructor should take during the period, even to the extent of such things as "stage directions" for presenting demonstrations and questions to be asked in developing a point.

MATERIALS, EQUIPMENT, AND CLASSROOM SPACE.—As soon as the type of text is decided upon, provisions must be made for obtaining it. If it is to

be prepared within the organization, it may be reproduced by some method such as mimeographing, printing, or photo-offset process. The appearance of the text material has a considerable influence upon its acceptability. It should be easy to read, clean, and attractive looking, and in keeping with the importance of the course.

Standard forms should be provided for practice material whenever possible. But if it is impracticable to use the standard forms, because of costs or other conditions, facsimile forms can be provided by the photo-offset process. For example, when it is desirable to give employees practice forms partly filled out so that they may complete the extensions and post additional data this method can be used. Machines to be used for practice work must be obtained or arrangements made to use them for the time of the training periods. These and all other supplementary material should be obtained well in advance of the time when they are to be used.

The instructional space must be selected and made ready. Individual instruction or coaching may be given at the employee's desk, at the supervisor's desk, or in a specially arranged room. Unless conditions prevent, the best space is at the employee's desk, as conditions are likely to be less artificial.

Group instruction may be given in a corner of the office or a separate room. The space used should be well lighted and ventilated, free from distracting influences, provided with comfortable chairs, tables, if necessary, and a blackboard and wall space on which charts can be hung. Chairs with broad arms providing writing space are useful for permanent classrooms.

INSTRUCTORS.—Much of the success of a training course depends upon the instructor. He must have a thorough knowledge of the things to be taught and must know how to teach.

Sometimes an instructor from outside of the organization may be chosen. Many office equipment manufacturers in large business centers provide well-trained instructors who are better able to teach employees how to operate their equipment than any one in the office. When the objective of the course is primarily to develop a knowledge of fundamental principles or attitudes, specialists in the field, drawn from the ranks of consultants, universities, or public schools, can also be profitably used if they have developed an appreciation of the business point of view.

Most training objectives, however, require the development of very practical operating knowledge and skills and, when this is so, the instructor must have an extensive and practical knowledge of the office operations. He may be drawn from the general training staff of the organization or from the operating personnel, usually the latter. If he is an operating employee, he should receive careful training in the art and principles of teaching.

From a job point of view, supervisory employees should be in the best position to serve as instructors. Since much of their time on the job is spent in instructing employees in detailed problems, they should have a thorough knowledge of the operations that form the content of the course and the relation of these operations to others in the company. Not all supervisory employees, however, are able teachers, and only those who are thoroughly successful under modern supervisory conditions should be selected as instructors of organized training courses; and even they should be given supplementary training in teaching methods.

SUPERVISION AND FOLLOW-UP.—During the progress of a course, careful supervision will pay dividends. This supervision should be exercised both over the content of the course as it is being taught and over the teaching methods. Periodic visits by the supervisor in charge of the training activities, together with individual and group discussions with the instructors, are the best supervisory media. The observations are made for the purpose of developing material for the discussions.

Discussions with instructors have to be handled tactfully in order not to disturb their self-confidence and yet, at the same time, to improve their teaching technique. If observation indicates that the instructors are not fully informed about the content of the course, they must receive reinstruction. This can be given in discussions which may take the form of demonstration lessons, again with the objective of not destroying the self-confidence of the instructors.

After a training course is completed, the employees should receive extra supervision in order to ascertain whether they have understood their instruction and are putting it into effect. If a few employees are found to be somewhat deficient, additional instruction by the supervisor or a competent senior employee will often be sufficient retraining. But if their deficiency is great, or if a larger number of employees is found to be deficient, a more formal type of retraining similar to the original instruction will probably be necessary.

Whenever an employee completes a training course, a notation to that effect, together with some rating of his work in the course, should be made on his personnel record. Desirable characteristics evidenced in the course of training activities are among the factors to be considered when employees are in line for advancement.

Auxiliary Training.—Supplementary training and education comprise those activities which supplement and enlarge upon direct job instruction. Generally speaking, they exclude the development of specific skills, but include the development of a knowledge of fundamental operating principles and the self-development activities which help a person to become a broader and more useful citizen as well as employee. For example, a bookkeeper

who is studying fundamental accounting principles or reading books on economics, a salesman who is studying governmental trade reports, or a supervisor who is studying commentaries on labor legislation, is carrying on an educational activity which will certainly aid him directly or indirectly in his work.

Supplementary training for employees pays dividends in two ways. First of all, the ideas and information gained from it often have a direct bearing upon the accuracy of decisions on the job or the development of operating ideas. In the second place, it is another way of keeping alive the habit of learning and the ability to learn readily, both of which are essential to any employee who expects to maintain, let alone improve, his present status.

Many companies provide educational advisory services through which employees can obtain information and advice about planning an individual training program or other schemes for self-development. Every office can profitably designate some qualified supervisor or staff assistant who will consult with employees about their educational problems.

All employees who show the least inclination to study should be encouraged to do so, both in their own occupational field and in more general areas. Employees who are potentially promotional material should be urged to do such work because of its usefulness in helping them to prepare themselves for promotion. The higher positions in business and industry today constantly require greater knowledge and information of those who occupy them. Young people are coming into business better prepared educationally than their fathers and older brothers were and their elders must work to keep ahead of them.

The bait of potential promotion, however, should be offered to employees very carefully, if at all. Many employees mistakenly believe that they have earned promotion if they have completed an educational program. Actually, they have merely acquired the tools with which to earn promotion. While additional educational activities of employees should be made a matter of personnel record, so that employees who are preparing themselves for better positions will not be overlooked, the greatest incentive to employees in supplementary training is the prospect of a better understanding of the operations of the business and a consequently increased enjoyment of their daily work.

AGENCIES FOR SUPPLEMENTARY TRAINING.—Many agencies exist which provide facilities for supplementary training, and most of them have a place in the training program of any company. The means for such training may be found in:

1. The body of tradition which any company develops and which must be absorbed by the new employee if he is to fit into the organization.

Wise office management recognizes this tradition as an important agent, as well as a stimulus, for supplementary development, and endeavors to make it one to develop employees.

2. Schools, whether of college or sub-college grade. Some companies have a refund plan whereby employees who satisfactorily complete approved courses are reimbursed for part or all of their tuition expenses. In large centers, evening schools are usually available. Correspondence courses published by public educational agencies, proprietary schools, and trade associations may be used to advantage by employees who have the necessary determination and ability to pursue them. Some companies have established study groups to help employees complete their correspondence courses.
3. Attendance at, and participation in, trade and civic association meetings. The capable employee, particularly, benefits from preparing papers and taking part in discussions.
4. Magazines and other literature published by trade and professional associations.
5. Libraries, both company and public. Some company libraries, as a matter of routine, refer items which are likely to be of special interest to them to various supervisors and department heads. All employees should be encouraged to use the libraries freely, both for specific information and for books and periodicals on general subjects.
6. Statistical and analytical data prepared and distributed by governmental and other agencies.
7. Company house organs. These can be made valuable agencies for supplying information about the company and developing sound company tradition.

The Supervisor's Responsibility for Training.—The office supervisor, as an operating executive, is responsible for production with respect to quality, quantity, safety, and economy. He not only must correct any situation in his office which affects his production adversely, but also must constantly be on the lookout for ways and means of improving his production. Consequently, he is primarily responsible for the training of the employees in his group.

Training is one of the most valuable tools the supervisor has, both as a means of correction and as a means of putting changes into effect. It is the supervisor's job to study his employees constantly to determine which ones need training, and then to see that they receive it, either from himself or from some other competent source. His job is not completed until each employee in his group is developed as fully as possible; that is, his job is never completed.

Evaluating Results.—Training courses and programs must be evaluated for two reasons:

1. So that the kind of training activities that will be most useful to, and economical for, the organization can be developed.
2. So that the training activities will not be thrown overboard in a mistaken enthusiasm for economy, because their value is not determinable.

BASIS AND TERMS OF EVALUATION.—The process of evaluating a course or program starts with its initial organization and especially its objectives, which depend upon the conditions that indicate the need for training. The primary basis of evaluation is a record of conditions before, during, and after the course or program, according to the established objectives. Even the best evaluations of training will be estimates rather than exact results, but a program can generally be evaluated in one or more of the following terms:

1. Relative rate of production, which requires a comparison of units of work per hour produced before and after training. In evaluating in these terms, however, such factors as increased fatigue, depressed morale, or a shifting of some part of the burden to other parts of the organization must be watched for. Any of these adverse consequences may result in an actual increase in cost of operation to the company, even though a single office may show a superficial gain.

2. Relative effectiveness of operation, which is measured by the completeness and accuracy with which the work is being done. The study of error records and complaint letters is useful in making this evaluation.

3. Improvement in morale, which is measured by the degree of confidence employees show in themselves, their associates, and the company. Uncertain or confused employees are likely to be irritable or indifferent. Adequate training gives people a greater self-confidence and tends to make them more interested and happier. For measures of morale more exact than estimates based on observation, unguided interviews with employees can be used; or surveys of employee attitudes in which the anonymity of employees is assured.

4. Employee reactions to the training activities, which are evidenced by participation in them, and their gains in knowledge and skill. Expressions of employee opinion are useful, particularly if they can be made anonymously, and can be obtained by means of simple questionnaires or check lists, to be returned unsigned.

PITFALLS IN EVALUATING.—Whenever a change occurs in operating efficiency, effectiveness, or in morale, training is almost certain to be only one of a number of influences at work, because other influences, such as illness, general business conditions, labor conditions, and even the weather,

sometimes help and sometimes hinder the obtaining of valuable results from a training program. Even the comparison of groups in training with control groups—those which carry on without benefit of training—will not give a true picture because the very fact that a training activity is in progress serves as a stimulant to all employees who have any association with it. To claim too extensive results from a training program is very unwise.

On the other hand, it is equally unwise to claim too little for a training program. If a succession of training courses is accompanied by notably improved operating or human relations conditions, a reasonable proportion of the improvement can be attributed to the training.

In conclusion, it should be pointed out that the basic strength of an organization is determined by the capacities, abilities, and attitudes of the men and women who comprise it. It is, therefore, a prime responsibility of management and supervision to devote such time and energy as are necessary for the development of the personnel to the levels required to sustain continuous and steady growth of the company.

Promotion

Need for a Promotion Policy.—The majority of persons engaged in business pursuits wish opportunities to learn through training and experience, to develop their talents and to acquire new ones, and to advance steadily from present levels to those on a higher plane where the demands are more exacting and the rewards more generous. They want and expect encouragement and assistance in such efforts but, above all, they want opportunity. In line with such desires, many workers are willing temporarily to make concessions on salaries and other working conditions. These are merely matters of the moment but opportunities for advancement and assistance in preparing for greater opportunities are matters of a career.

The promotion policy and practice of a business are important from many angles:

1. The more capable applicants looking for work will not willingly apply for a job in a concern where it is known that nepotism or an unsound promotion policy will probably prevent them from getting ahead. Most employees recognize and do not criticize the fact that in a family-owned business it is likely that the brothers or sons of the owners will be given preferential treatment. They do complain rightfully, however, that it is unfair to them when other relatives are brought into the business and installed in preferred positions. They are discouraged, too, by the practice of many concerns which go into the labor market to find candidates to fill openings which employees believe should be filled through promotion from within. This practice is usually resorted to because those responsible for filling the vacancies do not believe that they have in their employ suitable candidates for the posts.

Many times, however, the cause is a lack of knowledge about present employees, or pure shortsightedness on the part of the employer.

2. A poor promotion policy increases turnover, lowers morale, slows down recruitment, reduces the volume and quality of output and increases the cost of the work. The reputation of a business for its treatment of employees spreads rapidly and is quickly known in the community from which new workers are recruited. A bad reputation regarding promotions is a liability which should be eliminated through prompt change of any bad practices.

One method of handling promotions is to keep a chart for each department, listing on one side all the jobs in the department and on the other the names of the people who are performing, or who can perform, such duties. The supervisor will then be sure not only that each job is adequately covered for the present but also that someone else is sufficiently familiar with it to step into any vacancy which may occur. Supervisors should take pride in their ability to develop subordinates :

- (a) As understudies from among whom a successor may be picked in case the supervisor is promoted or retired.
- (b) To manage the department in the supervisor's absence.
- (c) To accept responsibility which the supervisor may wish to delegate in the normal course of affairs.

Responsibility should be fostered in subordinates by now and then delegating to them tasks which occur periodically, or by making the subordinates responsible for small units of the work. The supervisor may also consult his subordinates about various decisions to be made in matters of methods and routines, or of departmental policies. On minor points, at least, a good supervisor will allow people to make their own decisions. If he does not purposely build up a sense of responsibility in the key men under him they will not be able to stand alone, and they will not thank him if his negligence has left them helpless in this respect.

3. The growth and expansion of a business are closely related to the size and competency of its executive and supervisory staff. Through promotion, a strong staff may be developed at much less cost and with far greater reliance than it can be developed through competitive bidding in the open labor market at the time the need exists. Irrespective of the rate of turnover, the supervisor should never allow himself to regard his group as static. He should consciously develop something of the mental attitude of the football coach who is constantly called upon to train and develop new material each year to replace those who are graduating. The supervisor should be the first to suggest the promotion of a qualified employee to another section or department to fill a job which is rated higher than anything he has to offer in his own department. It is human nature for a supervisor to desire to retain

the services of someone who is doing an exceptional job. No company, however, can operate successfully on this basis, since no one could rise to managerial positions in the company and the effect on office morale would be disastrous.

4. A sound promotion policy turns business the company's way through its effects on the public and on customers, stimulates employee loyalty and cooperation in a manner not otherwise possible, and brings about such additional advantages as reduced over-all costs, elimination of deadwood on the payroll, and better utilization of personnel throughout the entire organization.

The Content of a Sound Promotion Policy.—Certain important provisions should be included in the promotion policy :

1. It should specify that promotions are to be made from within the organization in so far as possible.
2. Promotions should be made on the basis of seniority only when merit and other considerations are equal.
3. Promotions should be preferably on a company-wide basis.
4. All jobs should have promotional outlets if possible and if not, employees assigned to "dead-end" jobs should be rotated in order to gain promotional opportunities.
5. The promotional avenues leading from each job should be charted and the employees made aware of them.
6. Training and assistance should be available to all employees to help them prepare for promotional opportunities.
7. Each employee should assume the responsibility for his own training, and for training the employee at the next lower level to take over his work, so that he may become eligible for advancement.
8. Vacancies should be announced in bulletins or company publications so that all eligible candidates may have opportunity to bid on the job.
9. Careful personnel records of each employees' behavior, development, and progress should be maintained and these records reviewed periodically. When it is discovered that an employee is not making progress, an investigation should follow and the results discussed with the employee. It is not good practice to wait until it becomes necessary to discharge a worker to tell him that his performance has been unsatisfactory. It is easier to do this, but not fair to the worker or in the long run satisfactory to the company.
10. Employees should have the privilege of declining a promotion if they feel that it would not be in their best interest to accept it. This should in no wise affect their standing or rights to apply for the next promotional opportunity available should they be eligible for it.

This list is not all-inclusive, and not all of the factors covered can always be incorporated in the promotional policy of any one company, but the provisions recommended are among the more important. The exact policy must be formulated in the light of the limiting factors and the particular circumstances of the business. The objective should always be to adopt a promotional policy that will be fair and just to the employees—that will provide a strong incentive for them and at the same time will meet the requirements of the company.

Transfers

Definition.—In general, the term “transfer” is used to describe the movement of an employee from one job to another possessing equal status and requiring approximately the same skill, experience, and other qualifications. The distinction between transfers and promotions is that in the latter case the employee is moved to a job on a higher level and one which should require a higher degree of competency. The distinction may also be made by saying that a promotion is a movement upward in the structure of the organization, while a transfer is a movement to another position on the same horizontal plane.

Reasons for Transfers.—There are a number of important reasons why transfers occur. The most frequent causes are: a fluctuation in the volume of activities, to prepare employees for promotion, and to meet employees’ needs.

TAKING CARE OF FLUCTUATIONS IN VOLUME OF ACTIVITIES.—One of the most important reasons for transferring employees from one division to another is a change in the volume of activity in various sections of an organization. Weekly, monthly, and seasonal peaks may be met far more expeditiously by temporarily transferring employees from other sections where activities are light rather than by hiring outsiders who may be unfamiliar with the company’s procedures and methods. Furthermore, to hire employees in one division while others holding similar positions in another part of the organization are released will result in the loss of workers who may have acquired considerable skill and knowledge.

To handle these transfers most efficiently, centralized control over transfers is desirable. It is customary in many companies, where recognized peaks and valleys in activity occur, to report needs for, and surpluses of, workers to a central personnel officer. In this way transfers are effected and the working force is kept in balance.

To make a transfer program acceptable to operating officials, the personnel officer should make an attempt to shift only individuals whose abilities will match the requirements of the jobs to which they are being transferred. If workers are moved to any job regardless of their suitability, departmental

cooperation with the transfer program will be lacking and may lead to an eventual breakdown of the plan. It is only natural for department heads to release their poorest workers to other divisions during slack periods. Therefore, some companies permit the new supervisor to reject the transferred employee if he proves unsuitable after a reasonable trial period.

Many concerns record transfers, even of a temporary nature, on a special form, a copy of which is sent to the payroll department so that the employee's

S.F. 150		
PAYROLL TRANSFER		
TO WAGES OFFICE:		
CREDIT.....	DEPT. MGR.....	
DEBIT.....	DEPT. MGR.....	
For the following: PERIOD ENDING.....		
NAME	TIME	AMOUNT
EMPLOYMENT..... SUPERINTENDENT.....		

Figure 13. Payroll Transfer Form Used to Record Temporary Transfers

This form is filled out in duplicate by staff records clerk in personnel department and one copy forwarded to wage office to transfer employee's salary for indicated period.

salary for the period of the transfer will be charged to the division benefiting thereby. (See Figures 13 and 14 for illustration.) This procedure not only is fair to both divisions concerned, but also provides an incentive for divisions having surplus help at intervals to make these individuals available to other divisions.

H.O. FORM 113						
CHANGE IN SERVICE REPORT						
PERSONNEL OFFICE						
NAME					PRESENT DATE	
					EFFECTIVE DATE	
ADDRESS						
	DEPT.	NO.	POSITION			SALARY
FROM						
TO						
	PAY TO			ENGAGED		CHECKED BY
	HOLIDAYS			TRANSFER		
	BONUS			INCREASE		
	ADVANCE			TERMINATE		
AUTHORIZED BY © CREDIT OFFICE O.K.						

Figure 14. Form Used to Record Permanent Staff Transfers

Five copies of the report are made; one copy is retained by the Personnel Department, and the others are forwarded to the Salaries Office, Employees' Benefit Association, Training Section, and Addressograph Records.

PREPARING EMPLOYEES FOR PROMOTION.—Transfers are also used as a means of preparing promising young employees for promotion. Junior executive material or supervisors may be shifted from department to department to familiarize them with various activities carried on. This plan not only helps to qualify them for promotion, but also provides greater flexibility within the organization to meet the requirements of peak periods.

MEETING EMPLOYEES' NEEDS.—It is becoming a common practice in many companies for management to make transfers to meet the needs of employees as well as its own needs. The necessity for this type of transfer may arise in a number of ways:

1. *Faulty Placement.* An employee who has been placed in work for which he is unsuited or dislikes may be salvaged by finding work of a more fitting nature.
2. *Personal Friction.* Transfers may be used to solve problems arising out of personal relationships. Satisfactory employees may fail to get along with fellow workers or a particular supervisor and a transfer may be desirable to solve such conflicts.
3. *Relieve Monotony.* Employees doing very monotonous work may be shifted about to vary their work and increase interest in their jobs.

Necessity for a Transfer Policy.—While transfers cannot be made on a basis as systematic as that for promotions, it is desirable that a firm's policy regarding transfers be clear-cut and well publicized to employees. The policy should indicate when, and under what circumstances, transfers will be granted to employees. In addition, the channels through which requests for transfers may be made should be clearly indicated.

All requests by employees for transfers should be given careful consideration, preferably by a central personnel officer, who will take into consideration both the firm's and the employee's interests in the change suggested. In any event, the employee should be informed of the decision as quickly as possible and, if an unfavorable decision has been reached, told why the request could not be granted. While transfers originated by management to keep the working force in good balance generally do not require as much detailed consideration as those arising out of employee requests, the circumstances under which these transfers will be made should be clearly outlined so that employee misunderstanding may be minimized.

It should be noted that there is no universal plan for transfers which is suitable for all types of companies. The large organization containing many types of interchangeable positions frequently finds itself better able to develop a more comprehensive transfer policy than the small office lacking the same degree of flexibility.

Attendance, Leaves of Absence, and Vacations

Attendance.—One of management's most perplexing problems is, "What can be done to attain and maintain a high attendance percentage?" A study of employee records indicates that a definite plan for raising attendance percentage can be instituted when factual data are used in formulating the approach. Improvement will be shown when the causes of absences have been learned and ways found to reduce them. Absences are classified as excused and unexcused.

Excused absences should include authorized leaves, illness, accidents, death in immediate family, and vacations. These should not be taken into account in computing attendance scores or percentages. The means of deal-

ing with these causes of absences are health and safety education among the employees and betterment of plant working conditions.

Many businesses have adopted a group life insurance plan which makes nursing service available to policyholders. The fact that in cases of illness the employee may secure the services of a nurse will often get him back on the job earlier. Home visits by company-employed nurses may be of assistance to the employees, and at the same time determine the causes of the absences. Life insurance companies will gladly supply leaflets at periodic intervals for general distribution among employees to educate them on sound healthful living, well-balanced meals of essential foods, and the more common safeguards against the usual infectious diseases. In some localities, through cooperation of the Red Cross or other health services, mobile units for chest X-rays which may reveal conditions calling for immediate treatment are available to employees, thereby averting prolonged absences for illness. Regular physical examinations by company doctors or health clinics will often reduce time lost for illness to a very small percentage.

UNEXCUSED ABSENCES.—Unexcused absences is the classification to which the plan should be particularly directed. These can be divided into two groups: (1) causes originating within the office and (2) those influenced by external factors. The majority of unexcused absences are directly related to the employees' attitude; therefore the plan should be designed to cultivate a responsible point of view. Each employee should be made "attendance conscious" by understanding the importance of his job and its effects upon production. Employees who fully realize the importance of their jobs, and understand the necessity of attendance to maintain smooth flow of work and efficiency in the office, have the best attendance records. Employees' opinions on the number of absences allowed should be solicited before attendance rules are established.

Definite rules should govern the penalizing of violators, such as allowing, for example, no more than one unexcused absence a month; two such absences to bring a written warning; three or more in the same month to result in some severe penalty, such as suspension; and excessive or continued unexcused absences to result in dismissal.

After a plan has been developed and tentatively approved by management as being basically fair, it should be thoroughly discussed with the supervisor of one unit or department and then tried by that unit as an experiment. After a trial period, adjustments should be made and the plan then presented to all supervisors. Details approved by one supervisor may not be acceptable to another supervisor. Therefore, even though the plan is basically uniform, slight changes may be made to compromise the suggestions of supervisors. More interest is taken in the plan when these suggestions have received attention and recognition.

Attendance records should be maintained by supervisors and weekly attendance sheets or charts prepared.

METHODS OF STIMULATING ATTENDANCE.—Some companies use a score board to emphasize the importance of regular attendance. This score board is prominently displayed to announce competitive attendance records. In large offices, better attendance is created through competition between units or departments. Many companies periodically award cash prizes, an attendance trophy, or other type of reward to the unit with the best attendance. A majority of the units will endeavor to improve their records.

Placards, posters, bulletins, and cartoons displayed on bulletin boards or in departments create competition for improvement. "Pep" talks by supervisors to their employees in group meetings, as well as personal contacts with individuals, may have good results. Letters of commendation and praise by management to unit or department supervisors with the highest weekly percentage, or to all supervisors with a score above a relatively good percentage (95%), are great incentives to maintain a high level.

When such a plan has been in effect for some time, the information revealed by a study of charts, correlated with data obtained from personnel records, will prove valuable in making a retention list should circumstances require a reduction in personnel. Through a study of these records it has been found that employees with good education and a desire to improve their work, when assigned to jobs for which they have been trained, and with longer than average length of service, have the best attitudes. Employees with the best attitudes have the best attendance records.

Leaves of Absence.—The determination of what constitutes sound policy with respect to the various kinds of leaves of absence discussed below and the administration of that policy are matters of importance in business concerns. The fact that employee morale, turnover, attendance, costs, and production are affected by the policy and its administration suggests that much thought be given to the formation of the policy and that executives and supervisors be trained in its administration. It is not fitting that all requests for leaves should be granted or denied, nor is it desirable that one department or division of the company follow a more strict or liberal policy than another. There should be uniformity of practice in so far as it can be achieved and this can be gained only when there is a uniform policy and a trained staff to interpret and administer it. Inflexible rules do not serve. Each case must oftentimes receive individual consideration under the policy rather than the application of an unvarying rule to the case.

It is not an uncommon practice to delegate responsibility for approval of leaves to the supervisor in charge of the person making the request. In other cases where there is a separate office personnel organization, requests for leaves are referred to it for decision by the supervisor to whom the re-

quest is presented. In all cases the supervisor should receive the request and should know what the decision is, no matter who makes it. It is desirable that all leaves be recorded on the employee's personnel record for guidance in the future and to prevent abuse of a liberal policy.

REASONS FOR LEAVES OF ABSENCE.—Excluding sick leaves and vacations, which are separately considered, other reasons for leaves of absence are to:

1. Meet the emergency of death in the immediate family
2. Attend a funeral
3. Attend a wedding
4. Be married
5. Take care of a sick relative
6. Attend to personal legal affairs
7. Observe a religious holiday
8. Spend time with relative temporarily home after long absence
9. Serve on a jury
10. Receive dental treatment
11. Receive treatment by an oculist
12. Receive a series of special injections to prevent illness or contagious diseases
13. Await the birth of a child—expectant motherhood or fatherhood

Very few employers have set rules governing all such leaves of absence; they are usually granted if the employee is satisfactory, the circumstances warrant it, and the condition of the work permits it. In those few cases where rules have been established, they follow procedure somewhat along the lines disclosed by a recent survey by the Research Committee of the Boston Chapter of the National Office Management Association, i.e.:

Companies with 100 or more Employees

	Number of Companies Reporting
Operate under a plan, but also subject to individual consideration	17
No plan—each case decided on its own merits	9
	<hr/> 26

Summarization of 17 companies who operate under a plan:

Reason	Full Salary	No Salary	Period of Allowance	Most Common
Illness in Family	15	2	1 day to 10 days	1 week
Death in Family	17	0	1 day to 10 days	1 week
Funerals	17	0	½ day to 10 days	1 day
Jury Duty	16	1	No limit	—
Religious Holiday	11	6		
Personal	13	4	1 day to 10 days	1 day

Of the companies reporting full pay for jury duty, four stated that salary is reduced by the amount of jury fees.

In almost all cases, the plans are flexible and allow for more or less time at the discretion of management or the department head.

Companies with less than 100 Employees

The policies of these companies are so variable that they do not lend themselves to summarization. With few exceptions, absences with pay are allowed, the period of allowance determined by consideration of circumstances in each case. In general, the companies in this group are more liberal in their allowances than the larger companies.

Sick Leaves.—Economic security has always been the goal of salary and wage earners. To many of them, loss of income because of illness has been a calamity to be avoided at all cost. Thus, in the lack of some kind of sick leave compensation, illness that should have been treated with early rest and medical attention has been hidden from the knowledge of the employer. This often results in longer and more severe periods of illness and absence from work. Such a practice has subjected other workers to the same illness and the quality and quantity of work has suffered. Workers who live in fear of loss of income because of illness or accident cannot do their best work even in periods of good health.

Employers, by adopting some kind of plan for paid sick leaves, gain employee good will and stimulate morale.

THE TREND IN SICK LEAVE PLANS.—In the beginning, sick leave plans were very informal, each case being decided upon its own merits. Factors such as length of service, value of the employee to the company, loyalty, etc. were considered in making each determination. Such informal plans are still being used in many small businesses but the trend is toward the adoption of specific or semi-specific plans, especially in concerns employing large numbers of workers.

The United States Department of Labor reports that an increasing number of specific sick leave provisions are being incorporated in union contracts.

Modern sick leave practices are varied and lack uniformity. However, they can be generally classified as follows:

1. Specific written plans—(a) with employer paying compensation during sick leave, or (b) with an insurance company paying part or all of the compensation during sick leave through a group insurance plan.
2. Semi-specific written plans—similar to the specific plans but which permit individual consideration of unusual cases.
3. Informal plans—each case being decided on its own merits by the employer.

SPECIFIC PLANS.—Specific plans will be found more prevalent in large companies with many employees. These plans usually set forth, in writing, such pertinent facts as:

1. Length of employment required before sick leave compensation will be paid.
2. Maximum annual sick leave permitted.
3. Compensation payments to be made during sick leave.

Some specific sick leave plans that are in use are summarized as follows and indicate the wide variety of plans that have been adopted by industry:

Co.	Sick leave granted after	1st Year	2nd, 3rd and 4th Yrs.	5-10 Yrs.	Over 10 Yrs.
A	Less than 1 yr.	1-2 wks.	1-2 mos.	4-5 mos.	6-12 mos.
B	6 months	2 wks.	4 wks. with full pay 2-12 wks. half pay.	4-12 wks. full pay 17-34 wks. half pay.	12 wks. full and 40 wks. half pay.
C	.....	1 wk. for each year of service or fraction thereof.			
D	.....	2 wks. for each year of service—cumulative and reduced by actual number of days lost. Maximum 26 weeks.			
E	6 months	6 days cumulative short-term leave during any calendar year; 2 wks. for continuous illness with salary deductions subsequently.			
F	Immediately	10 days cumulative short-term leave in one yr.; 2 wks. for continuous illness plus 1 wk. for every yr. of service; thereafter subject to benefit plan allowing salary for 1 yr.; plus half salary for an indefinite period in unusual cases.			
G	6 months	1 wk. at two-thirds salary	1 wk.—over 3 yrs.	1 wk. plus one-third salary for an additional wk.	
H	1 month	1 day for each month of consecutive service.			
I	.....	Joint contributory benefit plan: Full pay or a pro rata portion for 1st week. Half pay for remainder of disability up to 26 wks. in any calendar year, for any one disability. In addition, the balance of full pay beginning with the 8th day and continuing for number of weeks equal to full years of service.			
J	1 year	.....	1 wk., 2 wks. after 2 or more years of service.		
K	Immediately	2 weeks	After 1st yr., up to 1 mo. salary allowance for each full year service.		
L	.....	1 week for each yr. of service. If sick leave totals less than 1 wk., difference is paid as cash bonus at end of year.			
M	.....	9 days each calendar year plus 9 days for other emergency absences.			
N	2 months	1 day for each 2 mos. of service. 6 days for each year after 1 yr. of service. If sick leave is unused, employee receives half day's pay for each unused day. Penalties imposed for tardiness. A full wk.'s salary is paid for perfect record as to tardiness and absence.			
O	3 months	13 wks. a yr. if covered by ins., otherwise 3 days.			
P	6 months	% of 2 wks. full pay and 4 wks. half pay.	3 wks. full	4 wks. full	
Q	30 days	3 wks.	6 wks. half	6 wks. half	8 wks. half
R	2 years	None	6 wks.	13 wks. full	6 wks.
S	30 days	1 wk. full	13 wks. full	13 wks. half	13 wks. full
T	Indefinite	1 wk. half	13 wks. half	39 wks. half	12 wks. full
U	3 months	30 days	4-6 wks.	12 wks. full	12 wks. half
		60 days	3 mos. full	3 mos. full	6 mos. half
			6 mos. half	6 mos. half	
		1 wk. (additional sick leave is covered by health insurance and pays two-thirds salary up to 26 wks.)			

Specific plans have the advantage of giving equal treatment to all employees, within the terms of the particular plan. Favoritism is reduced and every employee knows what to expect should he become ill. The principal disadvantage of such plans is that they cannot be made flexible enough to cover special worthy cases without becoming too liberal and uneconomical. Relatively few companies have group health insurance plans. Such plans, however, have merit in meeting some of the costs of sick leaves.

SEMI-SPECIFIC PLANS.—Semi-specific plans are similar to the specific plans in all respects except that management reserves the right to extend sick leaves beyond the specified maximums and to set compensation rates in unusual cases or in cases where length of service, loyalty, value to the company, etc., are determining factors. Such plans will probably have lower specified maximum sick leave periods but the flexibility that they permit makes them more advantageous in many cases.

The following is an example of a plan adopted by a financial institution:

1. Accumulated sick leave (maximum 120 days).
2. After sick leave is used up, half pay for one month for each completed year of service up to six (minimum \$15 per week).
3. Thereafter, separate consideration for each case.

Other semi-specific sick leave plans are summarized as follows and again indicate a wide variety in adopted plans:

Co.	Sick leave granted after	1st Year	2nd., 3rd and 4th Yrs	5-10 Yrs.	Over 10 Yrs.
A	Less than 1 yr.	1-2 wks.	3-4-5 wks.	6 wks.	Individual merit
B	Immediately	2 wks. annually—occasional exceptions.			
C	Immediately	2 days up to 3 mos., after 3 mos., a cumulative total up to 2 wks.; then two-thirds salary from 3rd through 54th wk. with maximum of \$40 per wk. Company may at its discretion make up the difference between two-thirds salary for period not to exceed 6 wks.			
D	Immediately	1-2 wks. 3 wks. 2nd yr.; 4 wks. thereafter (allowable maximum), at discretion of dept. head.			
E	30 days	1 wk.	1 wk.	1 wk.	Depends on importance of employee.
F	Immediately	1 wk.	2 wks.	2 wks.—more on	exec. approval.
G	6 months	2 wks. full 13 wks. Two-thirds pay	4 wks. full 26 wks. Three-fourths pay	6 wks. full 52 wks. Four-fifths pay	Same up to 20 years.
H	6 months	2 wks.	2 wks.	Varies	Varies
I	30 days	2 wks.	3 wks.	1 mo.	Individual
J	Indefinite	12 days—more on recommendation of dept. supv'r.			
K	30 days	12 work days.	21-30 days	Individual	Individual Decided by treasurer.
L	Indefinite	4 wks.	4 wks.	4 wks.	
M	30 days	4 wks. (more if special approval granted)			

INFORMAL PLANS.—With few exceptions, companies that are operating without the benefit of a written plan rule on each sick leave individually.

Decisions are based on length of service, value of the employee to the company, etc. In most cases, sick leave allowances are generous and compare favorably with those granted under more formal plans.

Under most informal plans decisions as to sick leave allowances are made by department heads or other executive. Under such a system unfairness and inequalities are bound to arise. To overcome this disadvantage some companies have appointed committees to act upon sick leaves.

One company, while considering each case on its merits, has set up a table of sick leave allowances as a guide to uniformity. So varied are the informal sick leave plans in use that they do not lend themselves to ready summarization.

PROCEDURE FOR HANDLING SICK LEAVES.—Regardless of the kind of sick leave plan in effect, it has been found that very few companies have a formal procedure for the handling of sick leaves. Most companies require a sick employee to notify his supervisor promptly on the first day of absence. Beyond that point procedures vary widely. In many cases the supervisor takes the responsibility of continuing a sick employee on the payroll or of advising the payroll department to reduce or stop the pay of the absent employee. This action is usually done by phone, by note, or in some other informal manner.

One company requires each supervisor to file a daily report of absences with its personnel department. Authorizations for sick leave compensation are then issued to the payroll department by the personnel department. Another company, that has a health and accident insurance plan, requires the execution of a three-part form (see Figure 15) if and when the sick employee is out more than one day. Printed instructions at the bottom of each of the three copies of this form indicate the procedure for, and the use made of, each copy.

Vacations.—Vacations are usually given to improve employees' morale, maintain their health, and to prepare them for a new year of effective work. Policies covering vacations must emphasize interest in employee welfare and be simply stated so that all may understand them.

ELIGIBILITY.—Service requirements for vacation allowances most favored are: Six months' service—one week of vacation; One or more years of service—two weeks of vacation; Fifteen or more years of service—three weeks of vacation. Many companies permit extensions of vacations by one or more weeks (usually without pay) when requested by the employee and justified by the circumstances.

In computing length of service to establish eligibility for vacations, some concerns which allow one week's vacation for six months of employment require that the six months of service must be completed before the begin-

DISABILITY Form 124-2		NAME		COMP. NO.		OCCUPATION		FILE NO.	
1 ABSENCE REPORT		HOME ADDRESS		CITY		DEPARTMENT		SUPERVISOR	
FIRST DAY SICK		FIRST DAY ABSENT FROM DUTY		PLACE OF EMPLOYMENT		COMPANY INITIALS		PROBABLE DURATION	
NATURE OF DISABILITY OR ILLNESS		ADDRESS		COMPENSABLE CASE		PROBABLE DURATION		IF HOSPITAL CASE, SHOW NAME AND CITY	
ATTENDING PHYSICIAN		REMARKS		DATE REC'D PERSONNEL DEPT.		CLAIM BLANK OUT DATE		BY	
TO PAYROLL SECTION		TO PERSONNEL DEPT.		TO PERSONNEL DEPT.		TO PERSONNEL DEPT.		TO PERSONNEL DEPT.	
The employee named above is to be placed on disability compensation as of _____ Prompt notice of termination of disability will be furnished.		The above information was received by me today. The usual compensation request has been forwarded to the employee for execution.		SIGNED: _____ DATE _____		SIGNED: _____ DATE _____		SIGNED: _____ DATE _____	
NOTE:—This copy to be signed by supervisor of absent employee and forwarded with No. 3 copy to Personnel Dept. on second day of absence.		NOTE:—This copy to be signed by the employee's supervisor upon the employee's resumption of work and promptly forwarded to the Personnel Dept.		NOTE:—This copy to be signed by the employee's supervisor upon the employee's resumption of work and promptly forwarded to the Personnel Dept.		NOTE:—This copy to be signed by the employee's supervisor upon the employee's resumption of work and promptly forwarded to the Personnel Dept.		NOTE:—This copy to be signed by the employee's supervisor upon the employee's resumption of work and promptly forwarded to the Personnel Dept.	
SIGNED: _____ DATE _____		SIGNED: _____ DATE _____		SIGNED: _____ DATE _____		SIGNED: _____ DATE _____		SIGNED: _____ DATE _____	
NOTE:—The person designated to visit the employee will report the employee's condition as fully as possible, together with probable duration of disability and any other pertinent remarks. This report to be returned promptly to the Personnel Department.		NOTE:—The person designated to visit the employee will report the employee's condition as fully as possible, together with probable duration of disability and any other pertinent remarks. This report to be returned promptly to the Personnel Department.		NOTE:—The person designated to visit the employee will report the employee's condition as fully as possible, together with probable duration of disability and any other pertinent remarks. This report to be returned promptly to the Personnel Department.		NOTE:—The person designated to visit the employee will report the employee's condition as fully as possible, together with probable duration of disability and any other pertinent remarks. This report to be returned promptly to the Personnel Department.		NOTE:—The person designated to visit the employee will report the employee's condition as fully as possible, together with probable duration of disability and any other pertinent remarks. This report to be returned promptly to the Personnel Department.	

Figure 15. Form for Handling Sick Leave Authorizations

ning of the vacation period established as company practice by the personnel department. In other companies, the six months' service must be completed before the end of the fixed vacation period established by the company in order to be eligible for one week's vacation. The same practice applies in those cases where one or two weeks' vacation is given for one year of service. In most cases the service must be completed before the beginning of the annual and stated vacation period.

PLANS FOR PROVIDING VACATIONS.—There are differences in the way in which vacation programs are handled in different companies. The following are the common methods:

1. *Shut Down.* Where business operations permit, some companies shut down for a specified vacation period, usually during July or August. This plan permits cleaning, painting, and other work that otherwise might interfere with daily work schedules. Such a plan eliminates the employee's choice of vacation time except in the case of the skeleton force kept on duty during the shut-down period. This plan is not usually feasible in the case of office workers.
2. *Staggered.* Staggered vacation plans are most popular because they permit the arrangement of work schedules so there will be no excessive pile-up of work due to absence. The trend is toward allowing vacations throughout the year which permits maximum opportunity for each employee to choose his most favored time.

Studies of vacation experience show that vacations should be taken in one unit of time if the purpose is to be realized. Occasional days off do not provide adequate change or relaxation, nor do employees appreciate such vacations even though they sometimes request them.

While vacation periods must consider convenience to the job, they should be set with sufficient flexibility to permit changes where employees can show good cause for requesting changes.

VACATION COMPENSATION.—Most companies compensate employees for vacation periods on the basis of normal salaries during a regular work period. Calculation of vacation pay in such manner is easily understood. Vacation pay is usually included with the pay for the immediately preceding period. Some companies prefer to make vacation payments on the last work day before the vacation period is started.

Because vacations are given to prepare the employee for the work of the coming year, many companies do not allow vacation pay to employees who leave before they have taken their vacations. Some companies, however, consider vacations as a reward for past work and in cases of termination before the vacation period the vacation allowance is paid.

Many concerns consider in vacation compensation not only normal base salary, but additional earnings for extra time worked at normal and over-time rates. Thus the clerical worker on a 40-hour week basis earning \$40 a week, but who had worked 48 hours throughout the period preceding the vacation, would receive as vacation compensation the average weekly earnings, rather than the \$40 base pay, for each week of vacation. It is not common practice to allow additional pay for holidays which occur during the employee's vacation period and for which the employee would receive pay if not on vacation. If the company's incentive plans for punctuality, attendance, etc., offer additional days which may be added to the vacation, the rate paid for these additional days is usually the same as the rate paid for the regular vacation days. In many companies these extra days may be taken at times other than the vacation period.

SCHEDULING VACATIONS.—The first step in vacation planning is to send notices to each employee stating the company's vacation policy, the months when vacations may be taken and providing spaces for the employee to indicate his first and second choices of the dates desired. The notices should be signed and returned to the proper supervisor on a specified date.

The second step is the tabulation of first choices on prepared schedules

_____ Department													
Job and Employee	Substitute to do Work	Weeks Beginning											
		January				February				March			
		6	13	20	27	3	10	17	24	3	10	17	24

Figure 16. Form for Tabulating Vacation Schedules by Departments

such as shown in Figure 16. When the tabulation of first choices has been completed by the department supervisor there may be instances where second choices will have to be used. In such cases senior employees are usually given preference over their juniors. Even second choices may have to be changed and when this is necessary the employee involved should be asked to accept dates suggested by the supervisor. The form provides space for showing the names of substitutes who will undertake normal job routines. This emphasizes the necessity of having more than one employee trained for all routine and important jobs. Many companies having centralized stenographic and filing sections find it possible to loan employees to other sections and departments during vacation periods.

The third step is to give each employee a written statement showing his vacation dates. At this time copies of the schedules should be supplied to the payroll department and others interested. It is important to notify all holders of vacation schedules regarding any changes made.

Discipline

Necessity for Maintaining Discipline.—No office can operate at full efficiency unless a reasonable degree of discipline is maintained. This responsibility presents a challenge to good leadership in striking a suitable balance between lax and severe discipline. In either extreme, the morale of the department will suffer and its efficiency will be correspondingly reduced.

The maintenance of discipline in the office is not essentially different in principle from a similar task in the schoolroom. It is bound up inescapably with the personality of the leader. If he is not the type who can command the confidence and respect of the clerical force, the chances are very much against his keeping good order and he should not be selected for supervisory work.

Given the basic qualifications of leadership to a reasonable degree, a supervisor should not have great difficulty in maintaining discipline. If people know they cannot get away with tardiness, loafing, gossiping, absence from their desks and so forth without being spoken to frankly about it, there should be little trouble on this score.

Methods Found Helpful.—Some of the methods which will be found helpful in maintaining discipline are as follows:

1. Published rules of office deportment which leave no doubt as to what is expected.
2. Standardization of requirements as far as possible so that all will be treated alike.
3. Careful delineation of work responsibility and authority so there will be no opportunity for duplication and conflict.
4. Immediate action by the supervisor on breaches of conduct or failure to follow standard procedure in the work.
5. Dismissal for repeated offenses after ample warning. A clerk who is allowed to stay on in open defiance of discipline will undermine the morale of the entire office.
6. Exemplary conduct by the supervisor in observing the requirements which he expects his department to meet.

In maintaining discipline, it should be remembered that as a rule it is better to reward virtue than to punish vice. A supervisor who has a wholly

negative outlook will succeed only in making his job more difficult. It is safe to say that in general a positive approach should always be tried first. For example, more is likely to be accomplished in improving the late record by posting the names of those with good records than those with poor ones.

Reward for work well done can be expressed in terms of praise and approbation. This will tend to tone up the morale of the whole department, and the other clerks will strive to emulate the person who has been singled out for special notice. The supervisor who follows the all too common practice of calling attention only to errors and shortcomings is neglecting an excellent means of morale building.

For supervisors who hesitate to call attention to shortcomings, a good time to lay a foundation for such discussion is when the employee first begins. The worker can be told that to speed his progress and as a normal part of the training program, his attention will be called to any mistakes that he may make. He is certainly likely to agree with this, and when the first opportunity comes up which requires such a discussion, it can be opened by reminding him of this previous conversation.

Pitfalls to Be Avoided.—In the maintenance of discipline, there are many pitfalls to be avoided by the supervisor. Among them are the following:

1. Unwarranted promises regarding salary, promotion, vacation, work assignment, desk location, and so forth.
2. Any display of partiality.
3. Any unnecessary flaunting of authority.
4. Intimacy with some of the workers in or out of the office which might rightly or wrongly give the others a feeling that discrimination existed.
5. Allowing office politics any place in the department.
6. Securing information from one clerk about the work or conduct of another. Such an employee will be placed in a very unfortunate position in relation to his fellow-workers and department morale will surely suffer.
7. Reprimanding a clerk for mistakes or misconduct in front of the whole group. The matter should be attended to quietly and unobtrusively at the supervisor's desk.

One could go on listing many obvious factors which influence morale favorably or adversely. The leadership qualifications of the supervisor, expressed in the administration of his specific responsibilities, will have a very direct bearing on satisfactory department discipline and morale.

Constructive Discipline.—The following summary from “Constructive Discipline in Industry”¹ indicates the stress laid upon discipline as a factor in good office management:

1. Effective industrial discipline is essential to the attainment of maximum productivity. The underlying philosophy of discipline is conceived in the broader thinking of the whole field of industrial relations; its methods are profoundly influenced by the condition of the labor market, by labor legislation, by the attitude of the unions, and by the exigencies of the productive process at a given period.

2. Today the concept of discipline as training—as education of employees in fundamental patterns of acceptable behavior and performance—is gaining ground over the more limited meaning of chastisement or retribution for wrongdoing. There is lessened preoccupation with symptoms and a more sincere effort to arrive at basic causation in dealing with infractions of rules and other irregularities.

3. Individual companies strive for consistency in setting the over-all standards for the workforce and in dealing with departures from such standards. The techniques whereby such consistency is achieved in some organizations include the formulation of a written discipline policy, the development and publicizing of rules and regulations, and the establishment of uniform penalties for infractions.

4. The extent to which the immediate supervisor is permitted to handle disciplinary problems in different plants ranges in varying degrees from virtually unqualified control by the foreman over the determination of corrective measures to restriction of his action to the administering of reprimands or warnings. There is an evident trend in the direction of curtailing the exclusive power of the individual foreman in matters of discipline in favor of review of the circumstances and determination of final action by some higher official.

5. Examples of more formalized procedures designed to achieve uniformity in the assessment of penalties and in other disciplinary action and to provide every offender with the opportunity for a hearing before an impartial body are furnished by the Discipline Control Board and the Board of Inquiry of two large-scale manufacturing organizations.

6. A growing number of companies have adopted the “exit interview” as standard personnel procedure in cases of proposed severance of an employee from the payroll. During this interview an attempt is made to obtain the worker’s version of the circumstances leading to the termination (or voluntary separation) and to weigh the wisdom or possibility of transferring the employee to another department of the organization.

7. Individual maladjustments and behavioral difficulties may arise from improper placement. Positive control of behavior and performance thus begins in the employment office. Where the interviewer is generally accurate in his appraisal of applicants, and where he supplements and confirms his judgment by objective and reliable selection measures, instances of improper assignment may be avoided. True, selective employment becomes more difficult in a tightening labor market. Simultaneously, the need for keener discrimination in selection

¹ AMA *Special Report*, No. 3.

and placement becomes even greater, since every worker must be depended upon for maximum productivity and strictest conformance to established regulations.

8. The clinical approach to disciplinary problems seeks to evaluate the degree to which physical, mental, social, and related factors are responsible for individual misconduct and failure to produce adequately. This scientific approach is widely endorsed by executives, although company resources often limit the extent to which it may be applied in practice.

9. Supervisory inadequacies often promote disciplinary problems. Among the weaknesses most frequently cited are "dependence on autocratic methods of control," "laxity in maintaining standards," "incompetent handling of human relationships," and "poor techniques of instruction." Further, the quality of supervision is not fully tested by the normal situation. It is the ability to understand the employee who is "difficult" because of emotional, mental, or physiological makeup and to help in his adjustment as an orderly and productive worker that the good foreman proves himself.

10. Understanding of human nature is promoted by systematized knowledge of established principles governing human motivation and behavior. Accordingly, study of the origin of human problems, as well as of the methods of dealing with such problems, is an established part of supervisory training programs in many organizations.

11. Ineptness on the part of top management accounts for some of the difficulties that arise among employees. Outstanding management deficiencies include "failure to encourage correct attitudes in the workforce" and "giving insufficient consideration to the labor viewpoint."

12. Labor-management cooperation is becoming a practical reality in many instances. Properly interpreted, such cooperation does not represent a dilution of managerial responsibility or authority. Rather, it serves to introduce ideas and facts which may be of incalculable assistance to management in its efforts to arrive at more intelligent, fairer, and more generally acceptable policies and plans of action.

13. An effective system of record-keeping is fundamental to the formulation of disciplinary policies and the adoption of measures designed to eliminate the major sources of difficulty and discontent in an organization. Such records furnish more detailed and reliable data about individual and group performance than is obtainable when the memory and subjective opinion of the supervisor are relied upon.

14. For the most part, companies offer no direct rewards to encourage obedience to rules and regulations, such compliance being expected as a condition of retention on the payroll. Primary emphasis is placed on indirect incentives, such as promotion, periodic pay increases, and other sound industrial relations practices of long-range import.

15. The highest type of control is that which originates within the individual worker. It is a reflection of a healthy state of mind and body. It develops from a man's belief in the personal integrity, in the fairness, and in the understanding of his superiors. Self-discipline in the employee group is the goal of enlightened leadership.

Termination of Employment

Importance of Standard Practices.—Termination of employment, both voluntary and involuntary, has such an effect on the control of personnel and the maintenance of morale and efficiency of the office staff that it warrants the full consideration of policies and possible procedures to set up standard practices. Termination of employment should be controlled by the executive in charge of the personnel function. He should be in a position to review impartially all the facts leading to the termination if a discharge for cause is recommended, or to ascertain an employee's true reason for voluntarily leaving the concern.

A clear-cut company policy and procedure should be established for the guidance of the employment or personnel manager to enable uniformity of treatment of personnel. Collective bargaining agreements usually contain clauses dealing with layoffs and terminations. Where no agreement is in effect, company procedure with respect to termination could well be made known to the employees to dispel any uncertainty on their part.

Causes of Termination.—Termination of employment falls within the following main categories:

1. Discharge for cause
2. Temporary or permanent layoff
3. Retirement due to age limits
4. Voluntary terminations

DISCHARGE FOR CAUSE.—Care should be exercised in discharge for cause. With the interchange of information between firms referring to former employee's conduct, habits, and capabilities, injustice can be done by careless reporting of causes for discharge. Dishonesty, insubordination, inefficiency, or chronic absenteeism are just reasons for discharge but such charges should be fully investigated by the personnel office and verified before the employee is discharged. Notation of such discharge reasons and evidence should be recorded accurately on the employee's personnel record card for future reference.

Discharge for cause usually carries with it certain penalties such as loss of holiday rights, company pension benefits, or severance pay. The office staff should be acquainted with all rules carrying penalties of discharge for cause.

TEMPORARY AND PERMANENT LAYOFFS.—Layoffs due to work shortages need expert handling by the personnel manager. Certain peak periods of activity can be accurately forecast in many industries, and employment arranged accordingly with the understanding that the employment is only for a certain period of time.

194_____

[illegible]

Analysis of Labor Turnover

In industries where employment is subject to fluctuation, certain employees are classed as temporary until such time as they have accumulated a set term of service to warrant their being classified as permanent employees. Established company policy and procedure serve the personnel manager as a guide for layoffs, whether permanent or temporary, and tend to eliminate charges of favoritism. As a rule, seniority, coupled with individual merit, is a fair basis of determining who should be laid off.

An evaluation of individual merit before a layoff will determine whether or not a highly qualified person can be retained in some other department of the organization, thus tending to raise the standard of efficiency. A policy of leaving the weeding out of misfits to a period of a general layoff should be avoided.

RETIREMENT.—A set policy of retirement at certain ages, which may differ for male or female employees, is desirable particularly when a pension plan is in effect. This policy will remove any basis for uncertainty in the mind of the employee and will tend to keep fresh personnel circulating in the organization.

VOLUNTARY TERMINATIONS.—The interviewing of personnel who voluntarily quit the firm gives the personnel department a good opportunity to ascertain reasons for dissatisfaction on the part of the staff. Certain terminations, such as for illness or marriage, may be unavoidable, but in other cases expert sympathetic questioning will often bring to light the true reasons for employees' leaving the firm. A record kept of the number of persons leaving and showing their reasons will be a guide to management for the correction of the causes for dissatisfaction. The record may show up bad working conditions, low salaries, unfair distribution of work, dissatisfaction with promotion possibilities, and other conditions leading to low morale.

Termination Records.—Records in an office should be kept at a minimum but a clear record should be kept of all terminations. A standard personnel record card may be used to record the history of an employee's employment, with particular attention being paid to recording layoffs and terminations.

A record of turnover of employment, such as Figure 17,² will keep management informed of trends within the organization. A high turnover will indicate something wrong. The interview of the departing employee may furnish the reasons. The answer may be faulty selection, poor placement, or ineffective training.

Whatever is the reason for the high turnover, intelligent handling of termination, both voluntary and involuntary, will give management the answer for correcting unsound conditions.

² Reprinted from Metropolitan Life Insurance Company's Policyholders Service Bureau *Bulletin* on "Personnel Records."

Severance Pay.—The practice of terminating the employment of a worker with some form of severance pay has become widely prevalent. The establishment of severance pay, in its broad sense, as a right or a privilege of the employee, represents one point of view in compensation or benefits policy.

A narrow definition of severance pay would cover only the payment of a sum of money, by the employer to the departing employee, which is over and above the regular wage or salary due. Severance pay is usually determined on the basis of the worker's length of service with the company, although in many cases the employer also takes into account such collateral factors as the age and salary level of the worker. Yet the practice of giving advance notice, which gives the employee an opportunity to clear up his affairs while still on the payroll, benefits the employee in much the same way as severance pay.

It is usually expected that the efficiency of the worker who has received advance notice of termination will decrease. It is likely that from then on he will expend a very sizable amount of time in purely personal activities such as writing or telephoning prospective employers—assembling or completing personal files of materials—and in actually taking time for off-the-job activities. Advance notice, therefore, often serves to ease the shock of termination.

The less desirable practice consists of notifying the worker of his immediate dismissal from the job, and paying only wages due plus notice or payment in lieu of notice, as required by state law. This method, more common in the past, is usually used by employers where no management-labor agreements cover the situation. While it is conservative, it brands the company as niggardly and out of step with modern practice, which reflects a more liberal treatment of the terminated worker. This is the general assumption that may be made if a national survey on severance pay conducted by the National Office Management Association Research Committee can be considered representative in reflecting current practices of business as a whole.

SURVEY OF PRACTICE.—A total of 279 companies contributed to the survey noted. Of more than one half million workers employed by these companies, one-fifth were office workers and the remainder operating or factory workers. Represented were manufacturing, bank, insurance, utility companies, department stores, and wholesale merchandisers. Manufacturers employed 60% of the total workers and made up 55% of the companies participating.

Four out of five companies either had a regular plan for paying severance wages and salaries, or gave advance notice to dismissed employees. Of these companies, only 18% gave advance notice regardless of cause of release, while 30% gave advance notice only when the cause of dismissal was beyond

the employee's control. Of those making payments, 16% made payment regardless of cause of dismissal, while 34% made payment only when the employee was not responsible for his dismissal.

In the matter of payments on dismissal, the report showed that the office worker fared much better than the factory or operations worker. Over half of the office workers reported were subject to regular severance pay benefits while slightly more than a quarter of operations or factory workers were so benefited. In this connection, however, it should be pointed out that wage differentials and other benefits, in all probability, would more than equalize the over-all comparisons. As a matter of fact, of 275 companies reporting on this particular subject, only 22 or 8% had office worker unions, while 234 companies reported 157 or 67% situations in which factory workers were unionized. This analysis, however, is restricted to the depicting of sample severance pay conditions and the extent of relative participation by the two major categories of workers reported.

BASES FOR PAYMENT.—Payments were made on a variety of bases. Cash payments reported, for example, ranged from one week's to one month's pay, although only 46 companies indicated a policy of paying a flat sum of money to the worker at the time of dismissal. Of those companies basing dismissal pay on length of time served by the employee, only seventeen paid nothing for less than one year's service. On the other hand, 40 companies paid a week's salary and eight, two weeks' salary on dismissal of workers employed less than one year.

Where workers were employed from one to five years, two weeks' salary was the modal figure; more than five years, two weeks' and four weeks' salaries were paid, with a slightly larger number of companies paying the four weeks' figure. Forty-three companies gave special consideration to individual employees.

Some of the varied methods of computing payments were reported as follows:

1. One week's salary for each year of service
2. Two weeks' pay for employees earning over \$150 per month. Unemployment insurance is considered to be in lieu of payments for employees earning less than the above figure.
3. From 2 to 52 weeks' salary, depending on length of service.
4. Allow additional percentages of the pay based on length of service for certain employee age brackets, e.g., for 46 years of age, add 5%; 50 years, add 25%; 54 years, add 45%.
5. Nothing paid for less than ten years' service.

In a survey on the same subject conducted by the Chicago Chapter of the National Office Management Association, with 34 companies reporting, a

percentage almost identical with the national survey on the matter of company participation in dismissal payment plans was noted. (55% National, 56% Chicago.) A much higher proportion of companies made lump sum payments (37% National, 90% Chicago). Dismissal compensation, with only one exception, applied equally to men and women.

Personnel Records ³

Value of Adequate Records to Personnel Administration.—The growth of office management functions to their present size and degree of importance is due largely to the fact that management has recognized the need for factual information and data as a means of formulating policies, making decisions, and exercising control over the activities of the business. These records needed by management should not only refer to the transactions of the enterprise but should also relate to its personnel. Good personnel policies and practices must be based upon a sound and comprehensive knowledge of each individual employee and upon the significant characteristics, actions, performances, and requirements of the employee group. Furthermore, it must not be overlooked that various governmental agencies require information concerning employees and various laws make it mandatory that certain records be maintained for official inspection at any time during the stated period of years within which they must be retained.

There is a close correlation between adequate personnel records and effective supervision, sound employee relations, and productive personnel policies and practices. From the supervisor's viewpoint it is necessary that records of individual employees include references, previous experience, training, education, test results, attendance, punctuality, leaves, promotions, disciplinary actions, grievances, and the various other elements of job behavior in addition to the usual performance records of work produced, spoilage, and errors. From the viewpoint of the office manager or office personnel man, it is essential that summary records by organization units, types of workers, sex, and other classifications be maintained as a basis for measuring the effectiveness of policies and practices including selection, training, transfer, promotion, and supervision.

The above represent but a few of the reasons why it is important that adequate personnel records be maintained. These reasons are sufficient, however, to urge office executives not to overlook their importance and to justify them in developing the necessary organization unit needed to gather, record, and aid in the interpretation of adequate, accurate, and timely data concerning the personnel of the clerical organization.

Types of Records Needed.—In appropriate places in this book, various personnel records are discussed and in some cases illustrated. However,

³ Courtesy of Remington Rand, Inc.

as a matter of convenience to the reader, illustrations of the most important records are briefly shown on the following pages.

1. *Personnel Requisition*—Figure 18. Used to notify the personnel department of the need for additions or replacements to staff.

PERSONNEL REQUISITION											No.	
Date Issued		Date Needed		Date Filled		Department		Rate Range				
Job Title or Number:				Job Description:								
Check Explanation Below											To Begin Work	
Male	Female	Shift 1 2 3	Increase Force	To Fill Vacancy	Permanent	Temporary	Approx. Duration	Age Limit	Date	Rate	Time A.M. P.M.	
Education Required:												
Skill or Experience Required:												
Physical Requirements:												
Approvals												
Foreman or Dept. Head:						Personnel Manager:						
Superintendent or Div. Head:												
1. Original to Employment Department 2. Originating Department						Date Received Employment Department						

Figure 18. Personnel Requisition

2. *Application for Employment*—Figure 19. The use of this record is described in Chapter 3 under the heading Recruitment and Selection.

3. *Employment Notice*—Figure 20. A means of notifying the requisitioner of the employment of an applicant or the rehiring of a former employee.

4. *Employment History Record*—Figure 21. A permanent record in the personnel office. Used in connection with ratings, permissions, transfers, training, layoffs, etc.

5. *Identification Card*—Figure 22. Assurance of the employee's identity.

6. *Employment Journal*—Figure 23. A log of employment activity.

7. *Transfer Journal*—Figure 24. A log of employees transferred from one job or location to another.

8. *Termination Journal*—Figure 25. A log of separations which includes information that may be statistically analyzed for various purposes.

9. *Personnel Requirements Register*—Figure 26. A summary of personnel requirements taken from unfilled personnel requisitions.

Name.....		Do not		Social	
Address.....		Phone.....		Security #.....	
Address.....		Phone.....		Clock #.....	
Address.....		Phone.....		Are you a citizen? Yes () No ()	
Address.....		Phone.....		In case of emergency notify.....	
Age.....		Date of birth.....		Relation.....	
				Maiden name.....	
				Wife's name (or husband's).....	

PERSONAL	HOME LIFE	PHYSICAL	DEPENDENTS	RECREATIONAL	LIFE INSURANCE CARRIED
Single.....	Own home.....	Sex.....	No. children under 16.....	Athletics.....	Kind Am't
Married.....	Rent home.....	Height ft. in.....	No. children over 16.....		Life.....
Widow(er).....	Rent room.....	Weight.....	No. dependent parents.....	Music.....	Health.....
Divorced.....	Live with parents.....	Color hair.....	Other dependents.....	Hobbies.....	Accident
Separated.....	Live with wife or husband.....	Color eyes.....			Name of company.....

EDUCATION				RELATIVES EMPLOYED HERE		
TRAINING	SCHOOL AND CITY	YEARS	GRADUATE	DEGREE	NAME	DEPARTMENT
Grammar school.....						
High school.....						
College.....						
Special courses.....						
				Health examination recently.....when.....pass..... For what purpose?.....Name of Doctor..... Physical defects or recent illnesses.....Work restricted.....		
Have you ever been employed by Remington Rand, Inc. before.....				If so.....when.....What plant.....		
In what capacity.....				How.....Date left.....		
Reason for leaving.....						
Have you ever received compensation for injuries.....				If so.....when.....where.....		
Give details.....						
Are you now receiving compensation for injuries.....				If so when injured.....where.....		
What work are you interested in or qualified to do.....						
Check classification in which you have some knowledge and ability and denote years of experience in each						

YRS. EXP.	YRS. EXP.	YRS. EXP.	YRS. EXP.
Apprentice.....	Janitor.....	Supervisor.....	Filing clerk.....
Assembler.....	Laboratory tech.....	Telephone tech.....	Finger print operator.....
Bench worker.....	Laborer.....	Timekeeper.....	Investigator.....
Blacksmith.....	Laundryman.....	Time study man.....	Mail clerk.....
Boilermaker.....	Machinist.....	Tool crib operator.....	Materials control clerk.....
Bricklayer.....	Machine designer.....	Tool designer.....	Medical technician.....
Cafeteria worker.....	Machine operator.....	Tool maker.....	Messenger.....
Car loader.....	Machine setter.....	Tractor operator.....	Nurse.....
Carpenter.....	Material setter.....	Traffic and truck routing.....	Office boy.....
Chauffeur.....	Material checker.....	Truck driver.....	Payroll clerk.....
Chemist.....	Mechanic, auto.....	Warehouseman.....	Personnel counselor.....
Draftsman.....	Mechanic, Diesel.....	Watchman.....	Pharmacist.....
Engineer, constr.....	Mechanic, general.....	Welder.....	Photographer.....
Engineer, industrial.....	Mechanic, helper.....		Purchasing agent.....
Engineer, radio.....	Mechanic, radio.....		Purchasing expeditor.....
Engineer, safety.....	Millwright.....	Office or General.....	Receptionist.....
Engineer, stationary.....	Nurse.....	Accountant.....	Record systems engineer.....
Expeditor.....	Painter.....	Accounting clerk.....	Restroom attendants.....
Fireman, boiler.....	Pipefitter.....	Auditor.....	Secretary.....
Foreman.....	Plumber.....	Bookkeeper.....	Statistician.....
Garage attendant.....	Porter.....	Bkpg. mach. op.....	Stenographer.....
Garage foreman.....	Printer.....	Cashier.....	Telephone operator.....
Gauge maker.....	Production clerk.....	Clerk.....	Traffic clerk.....
Groundskeeper.....	Rigger.....	Comptometer op.....	Typist.....
Guard.....	Service station man.....	Cost clerk.....	Waitress.....
Hand trucker.....	Sheet metal worker.....	Dictating machine typist.....	
Inspector, building.....	Steel worker.....	Employment interviewer.....	
Inspector, fire.....	Stores attendant.....		
Inspector, gauge.....	Superintendent.....		
Inspector.....			

The undersigned agrees that in consideration of the acceptance of this application that any inventions or improvements and/or devices that he may make, conceive or develop relating to office equipment allied to the products sold by Remington Rand, Inc. during the continuance of his employment will be promptly disclosed to Remington Rand Inc. and, without further compensation than covered under the terms of his employment. He shall upon request, assign such inventions or developments to Remington Rand Inc. for its full use and behalf.

Witness by Interviewer.....	Date.....	Signature of applicant.....
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Figure 19a. Application for Employment

Courtesy Remington Rand, Inc.

Work applied for.....		Name.....				
References (give the names of two persons, not relatives or former employer's who have known you for the past five years)		Do not write in this space				
Name.....		Name.....				
Address.....		Address.....				
Have you ever been convicted of a crime? Yes () No ()		Nature of charge.....				
If so when..... where.....		Disposition of case.....				
What shop machines can you set up and/or operate?						
NAME	SET UP	OPERATE	YEARS EXP.			
Any other mechanical experience.....						
Can you read and work from blueprints? Yes () No () years' experience.....						
What precision gauges can you use (micrometers, verniers, etc.).....						
What office machines can you set up and/or operate?						
NAME	SET UP	OPERATE	YEARS EXP.			
Remarks.....						
Record of experience (include Civil Service positions)						
MONTH AND YEAR	FIRM NAME AND ADDRESS	NAME OF FOREMAN	WORK PERFORMED	SALARY OR WAGE	REASON FOR LEAVING	
To.....				Begin.....		
From.....				End.....		
To.....				Begin.....		
From.....				End.....		
To.....				Begin.....		
From.....				End.....		
List your military service Branch	Service No.	FROM	TO	RANK OR RATING	TYPE OF DISCHARGE	UNIT
Special training.....						
Employed occupation.....		Class No.....		Rate.....		For.....
Department.....		Account No.....		Employee No.....		Req. No.....
Reporting date.....		Time.....		Signed employee.....		
Approved.....				Interviewer.....		
INTERVIEWER'S REPORT					DO NOT WRITE IN SPACE BELOW	
QUALITIES	OUT- STANDING	GOOD	FAIR	POOR	Remarks:	
Appearance.....						
Personality.....					Can report Salary by..... bracket.....	
Speech.....					Date..... By.....	

Figure 19b. Application for Employment (reverse side)

Figure 21b. Employment History Record (continued)

Figure 21b. Employment History Record (continued)


Name _____	
Social Security Number _____	
Division _____	
	REMINGTON RAND INC.
Signature _____	
Badge No. _____	

Figure 22a. Identification Card

in Emergency Notify _____				
<div style="border: 1px solid black; width: 200px; height: 100px; margin: 0 auto;"></div> <p>Photograph</p>				
Height	Weight	Hair	Eyes	Born

Figure 22b. Identification Card (*reverse*)

Figure 23. Employment Journal

TRANSFER JOURNAL					Period From To:			
					Page	Of		
No.	Name	Effective Date	Employee No.		Account No.	Pay Basis	Reason	Occupation
1				From				
				To				
2				From				
				To				
3				From				
				To				
4				From				
				To				
5				From				
				To				
6				From				
				To				
7				From				
				To				
8				From				
				To				

Figure 24. Transfer Journal

TERMINATION JOURNAL					Period From To:					
					Page	Of				
No.	Name	Effective Date	Employee No.	Occupation	Account No.	Pay Basis	M	F	Length Service	Term. Code
1										
2										
3										
4										
5										
6										
7										
8										
9										

Figure 25. Termination Journal

Name															Div.		Dept.		Emp. No.																		
19	D a y																														Late		Days Absent				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Hrs.	Min.	Sick	Exc.	Inexc.	
Jan																																					
Feb																																					
Mar																																					
Apr																																					
May																																					
Jun																																					
Jul																																					
Aug																																					
Sep																																					
Oct																																					
Nov																																					
Dec																																					
Code -- U - Unexcused Absence E - Excused Absence S - Sick L - Late (Show No. Minutes Late)																																					
Form No. 112															ATTENDANCE AND PUNCTUALITY RECORD										Remington Rand Inc.												

Figure 27. Attendance and Punctuality Record

10. *Attendance and Punctuality Record*—Figure 27. May be combined with time cards or the record of absences and tardiness may be transferred from time cards to the history cards and this record eliminated.

11. *Notice to Personnel Department of Reported Absences*—Figure 28. This form is used by supervisors and timekeepers to report absences when daily records of attendance are in the personnel office. May be used as basis for visiting nurse or medical follow-up of any absent employees who are out because of illness. This record may also be used for payroll purposes.

12. *Change of Address or Name Advice*—Figure 29. Used by pay office and personnel department to correct existing records. It is desirable, if the name of an employee has been changed by court action, that a copy of the court order be obtained and filed in the permanent records of the personnel department.

13. *Request for Leave of Absence*—Figure 30. Prepared by the employee and should be approved by his superior before it is presented to the personnel office.

14. *Employee Warning Record*—Figure 31. An exceptionally valuable record. Good relations with the union are often affected by the company's policy in laying off or penalizing a worker who has been orally warned for infringement of rules and who denies that he has received the number of warnings agreed upon in the union contract. Record of each warning given

NOTICE TO PERSONNEL DEPARTMENT OF REPORTED ABSENCE	
Name _____	
Dept. Number _____	Clock Number _____
Supervisor _____	
Date _____	Time _____
Will Return _____	Reason _____

Approved _____	Foreman _____
Employment Dept. _____	

Figure 28. Notice to Personnel Department of Reported Absence

CHANGE OF ADDRESS OR NAME ADVICE		
Remington Rand, Inc.		
Name (Please Print) _____	Employee No. _____	Date _____
Married or Single _____	Maiden Name _____	Dept. _____
New Address _____	City _____	State _____
Home (Or Nearest) Telephone _____	Telephone in Name of _____	
Name of Person to be Notified in Case of Emergency _____		Relation _____
Address _____		Telephone _____
<p>It is Important that we be Notified Immediately of any Change of Name</p> <p>Fill Out Completely and Give to Timekeeper</p>		

Figure 29. Change of Address or Name Advice

REQUEST FOR LEAVE OF ABSENCE		
PLANT	DATE	
Name	Check No.	
Position	Dept. No.	
Home Address	Tel. No.	
Address at which you may be reached while on leave		
Duration of Leave	Days (Not over 30): Starting	Ending
Reason for Request (Explain in Detail)		
RULES GOVERNING LEAVE OF ABSENCE		
1. The Company reserves the right to cancel Leaves of Absences for Personal Convenience upon written notice of 7 Days.		
2. Failure to report back to work on date of expiration will result in removal from payroll with resultant loss of seniority.		
3. If extension due to continued sickness is necessary I agree to apply at least one week in advance, in writing by Registered Mail, to the Personnel Department giving full explanation with Doctor's Certificate if possible. Remington Rand Inc., will then notify me by mail as to action taken on extension.		
4. Verbal promises will not be honored.		
I agree to abide by the above rules.....		
(Over)		Employee's Signature

THIS LEAVE HAS BEEN GRANTED			
Approved by: (Department Head)		Date	
Approved by: (Plant Manager)		Date	
APPLICATION FOR EXTENSION OF LEAVE			
Date Request Received	Decision (Granted-Denied)	By	Now Expires
Date Request Received	Decision (Granted-Denied)	By	Now Expires
Date Request Received	Decision (Granted-Denied)	By	Now Expires
One Copy for Employee			
One Copy for Employment Department			
One Copy for Accounting Department			

Courtesy Remington Rand, Inc.

Figure 30. Request for Leave of Absence

EMPLOYEE WARNING RECORD									
Remington Rand, Inc.								1 Employee's Copy	
Form No. 154 Name			Div		Dept.		Emp. No.		Date
This Warning is Given You Because You have Violated One of the Company's General or Safety Rules. It has been Entered on your Employment Record. You are Reminded that Obedience to all Company Regulations was a Condition of Your Employment. Further Violations may be Subject to Immediate Dismissal.									
Defective Work <input type="checkbox"/>	Safety <input type="checkbox"/>	Conduct <input type="checkbox"/>	Lateness <input type="checkbox"/>	Absence <input type="checkbox"/>	Attitude <input type="checkbox"/>	Housekeeping <input type="checkbox"/>	Disobedience <input type="checkbox"/>	Carelessness <input type="checkbox"/>	Neatness <input type="checkbox"/>
Remarks									
Signature of Foreman or Department Head					Signature of Personnel Counselor				

Figure 31. Employee Warning Record

usually brings the support of the union in cases of disciplinary action or discharge.

15. *Labor Turnover Report*—Figure 32. A summary record of labor turnover by departments, and by causes. One of the most valuable personnel records, its regular and detailed analysis yields much information to management which can be used as a basis for developing or changing plans, policies, and practices to help reduce turnover and improve employee relations. The method of calculating turnover should be standardized. The method used should be the one proposed by the Department of Labor. It is based on separations.

CHAPTER 5

MORALE BUILDING ACTIVITIES

Motivation

Human Incentives.—All gainfully employed human beings, from the porter to the president, have the same real needs or basic incentives to stay on the job and do a day's work. Motives vary somewhat but the leading forces that keep people on the job and living up to production quotas or schedules are: ambition, rivalry, economic need, and pride.

Management is aware of human differences such as: background, mental capacity, skill, health, and personality, but is sometimes unaware of the similarity of the psychological motivations of all employees on all levels to acquire and stay on a job.

No worker is of value to himself or to the company unless he is motivated to want security, opportunity, and recognition; and no company can operate profitably unless it is aware of these motivations and the attempts to satisfy them. The results of such motivations reflect themselves in higher efficiency, fewer errors, less waste, and reduced costs.

Actually, only a small per cent of employees lack the incentive to take a job seriously. Far greater numbers must work because they have dependents to support or have other financial obligations.

Both sexes are motivated to seek gainful employment for the following basic reasons:

1. Self-preservation
2. Responsibility (entire or shared)
3. Work interest (aside from necessity)
4. Desire for recognition (as a useful or successful citizen)

A certain group of women sometimes take jobs or positions for the following more personal reasons:

1. Boredom
2. To get away from home conditions
3. Desire for luxuries
4. To supplement family income

No matter what inner desire—conscious or unconscious—impels a worker to such employment, management must recognize these forces and assume

the responsibility for aiding the employee to find personal and job satisfaction.

Employees that possess one or more basic motivations are likely to stick at the jobs, produce the most work, and develop into the best promotional prospects. On the other hand, employees motivated by more personal desires are most likely to be individualists, hard to direct in their work and in their observance of company methods and practices.

It behooves a progressive management first to select a workforce that possesses the most usual and normal motivations, and then be constantly alert to the establishment and application of policies and procedures to keep such motivations satisfied and intact.

Four basic human wants motivating the employee are the desire for security, recognition, importance, and expression. These factors require analysis.

Striving for Security.—Security is a freedom from care or apprehensions, freedom from doubt, and freedom from danger. The unions have sold themselves as a source of security, and offer economic and psychological advantages. The union attempts to provide a sense of security principally in the following ways:

1. Gives the worker a sense of recognition and power so that he can identify himself with an influential organization and have the strength of the group behind him.
2. Provides him with a forum through which he can criticize management, and thus relieve his tensions.
3. Enables him to improve his personal position.
4. Absolves the individual from personal responsibility, as the union takes the responsibility for what he does providing he follows its leadership.

Management has the power, ability, and tools to offer an economic and psychological sense of security which can and should motivate maximum personal and production efficiency. Management can provide this basic sense of security and give to its workers a degree of economic assurance as well as freedom from doubt and apprehension, by establishing the following measures:

1. A basic wage plan—with a minimum and maximum which motivates the worker to progress and to merit a higher standard of living.
2. A promotional program which charts the course of each person's potential advancement.
3. Basic permanence of fundamental plans, making no drastic change without preliminary notification, because the average human being resents change, even when it is in his own best interest.

4. Employee benefits which definitely satisfy human needs and supply personal services, such as:
 - (a) Hospitalization
 - (b) Life and health insurance
 - (c) Medical service
 - (d) Welfare benefits
 - (e) Unemployment compensation
 - (f) Social security or pension plans
 - (g) Employee counseling
5. An established safety program. An insistence upon the part of management on elimination of hazards and the installation and maintenance of safety devices and equipment wherever they will aid in preventing accidents.
6. Demonstration of an interest in each person's well-being by constant awareness of the need of improving working conditions by eliminating unpleasant surroundings, poor lighting, exposure to uncomfortable temperatures, etc.
7. Establishment of profit-sharing or company stock purchase. It can be assumed that employees may be less likely to strike against themselves when they have such an interest in the company. Also they will identify themselves more closely with a business in which they have a share than with one in which they are merely workers.
8. Adoption of a severance policy somewhat as follows: "No employee will be released because of dissatisfaction with his performance except for serious cause, or before he is given at least two previous warnings." Adherence to such a policy is an effective means for establishing a sense of security among workers.
9. Put in writing the following policy: "We will comply with all federal and state laws, observing not only the letter of the law but the spirit as well." In the light of governmental concern with fundamental industrial policies, employees feel secure in any company that is sincere in its cooperation as well as honest in its operations.

Demand for Recognition.—Recognition on the part of management of the service or performance of an individual fills a basic human need. Some occasional open acknowledgment of something constructive that the employee has done is essential to keep him happy and give him a wholesome satisfaction in his job. This can be accomplished through many mediums, the following being a few that are suggested:

1. Give the worker credit when due. Train all supervision and management to be articulate in expressing appreciation for a job well done.

2. Make the best use of each person's ability. This takes constant attention and an insight to hidden talents as well as acquired skills.
3. Satisfy the basic desires of every employee to identify himself with the company and allow him to participate in the solution of problems which relate to him or his work. Increasing worker's participation increases his self-confidence.
4. Publicize individuals either through the medium of the company house organ, circulated notices, or bulletin board announcements, or by placing his name on the door or desk. Nothing is more satisfying emotionally than personal recognition.
5. Establish a seniority program, and recognize service through either a pin, gift, or any other standard means of personal acknowledgment.
6. Reward increased production, decreases in errors, or quality of performance by means of extra compensation. These are basic purposes of wage incentives.
7. Establish personnel ratings to give superiors an opportunity of evaluating a person and his performance. The worker then knows where he stands, and is frequently inspired to do a better job and win fresh laurels.
8. Encourage all executive and supervisory personnel to be friendly and to speak to all employees frequently. Every business that hopes to be successful must reflect a spirit of democracy, and insist on courteous and gracious behavior from the entire management group.

Craving for Importance.—Every individual is motivated by a sense of his own importance. Each is the center of his own universe, and has a position or standing of significance in his own family or social circle. Enlightened management puts forth every effort to make a man feel he is important to himself and his company. Progressive organizations have adopted the philosophy suggested in the following procedures:

1. Encourage all supervision to listen sympathetically to a person's problems and suggestions.
2. Establish an employee relations program built on:
 - (a) Friendliness
 - (b) Avoidance of favoritism
 - (c) Fairness and ethical conduct under all circumstances
 - (d) Frequent and regular personal contacts and interviews
 - (e) Due consideration of all problems, and prompt action on all possible solutions
 - (f) No public criticism of an individual
3. An anti-discrimination policy is essential to give the individual in any minority group a sense of personal security and importance.

4. Absolute adherence to sound organization principles establishes balanced relationships, and discourages a false sense of importance and power on the part of any individual which can react negatively on a group.

Impulse for Expression.—Every worker must have an opportunity to set forth his thoughts, reactions, and interpretations through some healthy constructive channel. Unexpressed thoughts locked up in the human brain are of no tangible value and unless they are tapped, management loses innumerable ideas of great practical and profit value. Industry has made rapid progress since companies have adopted programs such as the following:

1. Suggestion systems
2. Rumor blanks
3. Gripe boxes
4. Morale surveys
5. Labor-management conferences
6. Employee participation in the creation and execution of company policy
7. Grievance sessions
8. Training programs designed to supply facts, procedures, skills, and policies in such a way as to influence employees' attitudes, habits, and behavior. The conference techniques used in progressive training open up two-way channels of communications so that the worker has an opportunity to express his feelings and opinions, and management has a better opportunity to deal with these personal attitudes.

The success of any organization depends on having an adequate number of human beings in the right jobs at the right time, all producing at their highest capacity. That situation cannot come about unless executives understand the psychological factors that control human behavior, and learn to define their philosophies in such simple terms as: "Getting things done is accomplished through the efforts of people."

Once the administrative or line executives have complete and final responsibility for establishing personnel policies which give the worker a sense of security, and the staff executives advise, help, and are of service in the fulfillment of such policies, much of the industrial confusion and frustration which we now experience will disappear. Management's reward for properly dealing with human motivations will be a working force of better employees, better producers, and better citizens. The tangible results which will be a natural unfoldment are: reduced turnover, lower costs, higher efficiency, fewer errors, and increased and ever-growing profits.

Attitude Studies

Attitudes and Efficiency.—One of the basic human desires is the wish for continuous intimate association in work with other human beings. This desire brings about attitudes of all kinds. Knowledge of these attitudes is important to management because attitudes affect morale and morale increases efficiency while lack of morale has the opposite effect. This knowledge is important because more than efficiency is necessary for maximum performance. The zeal of wholeheartedness, contrasted with half-hearted activity, makes the difference between an organization that merely operates and one that cooperates.

Sources of Attitudes.—Attitudes are the many complex derivatives of indifference, suspicion, fear, and hostility on the one hand, and friendliness, loyalty, cooperation, and enthusiasm on the other. It has been said that material efficiency has been increasing without a corresponding development of understanding of human beings. Some tasks are satisfying to some persons but annoying to others. The girl whose work was changed from handwritten entries on cards to pasting labels prepared by volume typing felt that "pasting stickers" lowered her importance. She did not disclose her attitude until it was apparent that something was troubling her. The meaning of the task to the individual, and not the task itself, is important to the individual. Absence of explanation of the relationship of the task to the whole and of the value of the task to the organization develops undesirable attitudes. Management must recognize the importance of conditioning the employee to the task and of fitting the task to the employee.

The Attitude Survey.—It is difficult to control learning attitudes. Hepner says—speaking of attitudes which result from pre-employment experiences and outside emotional disturbances and environment and those which result from experiences on the job—"Many of the predisposing and precipitating factors defy the analysis of the scientist."¹ Roethlisberger, in describing the "Hawthorne" experiment at the Western Electric Company, says: "Secondly, they found that sentiments are easily disguised and hence are difficult to recognize and study."²

There appears to be general agreement about the causes of attitudes and their complex influence on morale, and about the difficulties of learning these attitudes. Each student of the subject proposes his line of approach. The guided and unguided interview, the exit interview, the personnel audit, the suggestion box, and many other well-known devices have been advanced

¹ H. W. Hepner, *Human Relations in Changing Industry*, Prentice-Hall, Inc., New York, 1934.

² Fritz J. Roethlisberger and W. J. Dickson, *Management and the Worker*, Harvard University Press, Cambridge, Mass., 1939.

as methods of tapping the troublesome and the beneficial attitudes, sentiments, dispositions, and feelings of employees for the purpose of studying them.

RELATION OF THE SURVEY METHOD TO OTHER METHODS.—It seems best that the attitude questionnaire survey be used to precede the many other useful devices available. The attitude survey has been found to be effective in disclosing general and specific attitudes. It unearths deep-seated feelings which other methods either fail to do, or accomplish only with considerable work and expense. The anonymous character of the questionnaire form draws out replies which interviews can do only after considerable conditioning and considerable probing.

From the answers, management can see those things which are causing trouble among many employees or employees of a specific class or in a particular location, and those things which may affect merely individual employees. The answers might relate to organization policies, supervision methods, work environment, nature of tasks, and countless unsuspected causes. An example of an attitude born of work environment was discovered when some employees expressed lowered opinions of the firm as a result of seeing groups about the office chatting frequently.

The attitude survey will not be a "cure-all" but will disclose problems which require correction. In addition it will give skilled interviewers leads for following up in their attempts to discover the problems of individuals and in determining which of these problems are individual and which are general.

In this way the attitude survey can be employed periodically as the initial thrust and then the other methods used as needed according to the indications shown in the results of the survey.

PREPARATION OF QUESTIONNAIRE.—Much skill is required in preparing the questionnaire. Above all, the employees must be prepared by an explanation of the purpose and by an assurance of the objectivity of the plan. It may be well to have many questions in order to cover all phases of the work. Well-chosen questions will prompt answers, in one way or another, from all employees. The main purpose is to discover attitudes which are not apparent in daily observation.

The supervisory staff can contribute much to the coverage and wording of questions for the particular groups of employees. An indirect benefit will result from this procedure. The supervisory staff will then appreciate more fully the responses.

The questions, of course, will relate to pay, working conditions, security, relationships with immediate and upper supervisory staff, personnel practices, and prestige of employment with the organization. Particular attention must be paid, however, to questions which will disclose a failure on the

part of management to keep employees informed of the reasons and background of the many frequent changes in the employees' work and environment. Such questions will most likely be found to be the most important in bringing out causes of wrong attitudes occasioned by management's oversights.

Questions which are general and objective will apply to a large number of employees and will eliminate, to a large extent, answers which require individual analysis.

Some questions will get better response by the narrative answer form; others by the check-off method for suggested answers; and others by the "Yes" or "No" type answers. The form of each question must be studied to make it inviting to the incredulous employee to answer.

The check-off and "Yes" and "No" forms of questions will be found to be more effective in eliciting answers where there is a general militant attitude or low morale suspected. The narrative answers will be more informative in reflecting the worker's thoughts and in giving him an opportunity of "getting it off his chest." This plan, no doubt, will produce more responses where there is a fair degree of morale. In a difficult situation the check-off or "Yes" or "No" question form could be used first and the employee's confidence won by the development and application of appropriate remedies based upon the responses. A follow-up with a subsequent questionnaire survey of the narrative type could be used to make deeper inroads into employees' thinking.

INTERPRETATION AND FOLLOW-UP.—Much skill must be used in analyzing the results of a questionnaire type of attitude survey. "The average personnel manager is not trained in the use of statistical devices nor does he usually have access to the morale scores of other companies. This situation lends support to the advisability of securing the advice or help of trained consultants, particularly in making the first morale survey by the questionnaire method."³

"Much information has been offered to managers with which they could help their workers to understand the nature, movements, tendencies, and problems of modern industry but the managers, as a whole, have not had the attitude of partnership and trusteeship toward their employees and toward society. They have been interested more in making quotas than in developing men who would spontaneously increase production and profits."⁴ The many works of original research in the technique of preparing and conducting the attitude survey will reward the office manager or personnel manager who examines them.

³ Reprinted by permission from *Personal Management*, by Scott, Clothier, Mathewson, and Spriegel, McGraw-Hill Book Co., Inc., New York, 1941.

⁴ From Harry W. Hepner, *Human Relations in Changing Industry*, Prentice-Hall, Inc., New York, 1934.

Care must be taken to recognize and discount a certain number of practical joker and crank answers although such answers must be studied to see if they reflect some difficulty not stated. Narrative types of answers will not rate as high in the scoring of agreements but must be recognized as expressing sentiments of many who could not frame such answers properly or who were not able to express themselves.

Look to the Answers—Not the Logic.—An industrial concern is not only an organization for the promotion of economic purposes; it is also a human organization in which the hopes and aspirations of individuals are trying to find expression. The same may be said of any other type of organization.

In handling human relations logic is not enough. The employee's way of looking at matters must be given due weight. The experiment at the Hawthorne Plant of the Western Electric Company "showed that once the habit of satisfaction was established among workers, the resultant high morale continued even without some of the material benefits, such as rest pauses, air conditioning, and the like. . . . What all their experiments had dramatically and conclusively demonstrated was the importance of employees' attitudes and sentiments."

In the last analysis the confidence of employees can be won best by taking actions which are shown to be necessary by the responses of the survey. The monotony of tightening bolts or properly addressing letters or packages can be overcome by recognizing the reason and importance of the task and by letting the employee know that it is so recognized.

House Organs

Nature and Purpose of House Organs.—Technically, the term "house organ" is applied to any publication issued regularly by a company—whether it be produced by mimeograph, multigraph, multilith, letterpress, offset, or other process. Basically, there are three types of house organs—the "internal," a medium published by and for the employees of a company; the "external," aimed specifically at customers; and the "combination" the purpose of which is to satisfy both the employees and the customers. The discussion to follow will apply to the first-mentioned or "internal" type. A survey conducted in 1944 listed no less than 5,100 house organs.

The main purpose of a house organ is to create mutual understanding between management and the workers and also to keep them well informed as to what is taking place in the company. Management has generally come to realize that well-informed employees are better employees, and that one of the most effective means of keeping them well informed in matters that have to do with the business is through the house publication. This publication gives the employee a feeling of belonging to an organization and it

has definitely been proven that it plays an important role in building morale. The fact remains, however, that the house publication field is still in a period of growth and experimentation wherein the best results are not always obtained. This is not the fault of anyone in particular and goes back in large part to the fact that management has only lately come to appreciate that its biggest single problem is the art of getting along amiably with its employees.

Methods for Running a Company Publication.—The need for a house organ is determined by the mutual desire of management and employees that the latter become enlightened on company policies, safety, recreation, welfare, social activities, and so-called "company doings." Top management should take the responsibility for its introduction. Unless management shows a very strong interest in getting a house organ started it is doomed to failure.

The editor is responsible for the organization of a publishing staff and it is his responsibility to surround himself with persons competent to do good work on the company paper. The issuance of an employee publication calls for a number of talents and capabilities above and beyond the mere ability to write. In too many cases, however, the job of editing has been turned over to some bright person who worked merely on a high school paper. When the swaying of employee opinion is so carelessly tossed about, it is small wonder that the executive who has jurisdiction over this branch of work doubts the value of his company's publication.

Senior management should be responsible for formulating policies relating to the publication of the house organ. The responsibility for mechanical make-up should be given to the editor of the publication, who should be versed in such matters. He may consult the various members of his editorial staff on such problems.

Contents of a House Organ.—The nature of the contents is determined by the editor and editorial staff who also edit the contributions. It is imperative that an intelligent editorial balance be maintained. There should be something in it of interest to almost every employee. There should be material that will make employees company-minded. There should also be human interest stories and regular departments. Special features and personals have their place and factual management-signed editorials will add greatly to the stature of the publication.

The employees should be permitted to submit to their departmental reporters articles of personal, departmental, or community interest including pictures. It is well to incorporate well-formulated company publicity of the type which will help improve management-employee relationships. Employees appreciate this feature because it gives them information direct rather than by the grapevine method. It is usually desirable to include

simple but detailed financial reports, building expansion programs, notes on equipment installations, and reports on other company activities. If the house organ does not regularly cover new developments, workers are likely to listen to untrue or distorted rumors and obtain their information from such unreliable sources.

Advertising as a means of making a profit-making venture of the house organ should under no circumstances be considered. Advertising can be news, however, and Red Cross, Community Chest, or other civic programs can be augmented by well-planned display ads. Promotion of company products can also be done in a house organ without becoming offensive.

Production.—The cost of producing a house organ is governed by two factors: the manner of printing and the extent to which the editor goes to embellish his type matter by the use of illustration cuts or pictures. One of the most inexpensive printing methods is mimeographing. From a cost standpoint this is closely followed by the multigraph and multilith processes. The two printing methods most often used for employee publications are the letterpress and offset methods, both of which usually cost more than the processes already mentioned.

It is best to have management and employees prepare and publish house organs if facilities are available. Both management and employees will show greater interest in gathering material for the house organ if the entire job is done within the company. Publication should be turned over to an outsider only if adequate company facilities are not available.

Whether the decision is made to publish in the form of a newspaper or magazine is relatively unimportant provided that the periodical accomplishes the objectives for which it is designed. So long as the final results are affirmative and beneficial, the format can be determined by circumstances.

Distribution.—Various methods of distribution may be followed. Copies may be placed at exits on publication date or they may be distributed at the time employees receive their pay. Copies may be delivered to offices of departmental heads and then distributed to the employees.

House organs should be distributed among employees without charge. This is management's only assurance that every employee will receive a copy without the excuse of being unable to obtain one because of the cost. Charging for copies may create a bad attitude as employees might feel that they had to pay for something that they helped to create for themselves.

It is very desirable to mail house organs to certain friends, customers, or dealers. Competitors are often eager to have copies of house organs, and if conditions permit, they should be supplied. It is also well to mail copies to editors of other local and industrial publications.

Results Secured.—Although it is difficult to measure accurately the benefits growing out of the publication of a house organ, they are none the

less present. Employee morale is almost certain to be improved by this means and the observer will see many evidences of renewed and increased interest on the part of employees in company plans and programs. Such in interest will tend to manifest itself in the individual employee's work, in his efforts to give more and better cooperation, and in his relations with his fellow workers. He will probably increase his individual efforts to improve his own efficiency and that of others, in such ways as: more regular attendance, punctuality, offering suggestions and trying to learn company rules, procedures, and practices, and to follow them more thoroughly. In summary, the decision to publish a house organ must grow out of the conviction that its benefits are very much like those of advertising. They are indirect, cumulative, and far-reaching.

Suggestion Systems

Value of Suggestion Systems.—In the past, suggestion systems have been used mainly in industrial plants and have related to their manufacturing, packaging, storing, and distributing processes rather than to offices and office procedures. With the exception of some of the larger public service and life insurance companies, offices have made little use of this plan.

A well-managed system with personalized contacts with suggestors, particularly those whose suggestions are not approved, can become one more means of building and retaining morale in the office as well as in the factory. It provides a method for stimulating employees to submit ideas and a channel for receiving and appraising them, and making effective use of those which are worthwhile and applicable.

The basic appeal is to the creative instinct of the employee. It builds him up in his own estimation through the realization that his ideas are solicited and appreciated and that he is contributing to the success of his company as an individual and not as just "one of a group." The morale building value alone of a good suggestion system is sufficient to make its installation worth while. When an office is well managed many of the suggestions received will most likely relate to only minor changes in forms and routines, because, if the office manager is competent, he will have thought out and made effective most of the more important improvements on which suggestions might be made. But even the most alert office manager will occasionally overlook an opportunity for improvement in his office. If a suggestion does come through covering some new method or idea, he should gladly accept the recommendation and give every possible credit to the suggestor.

Results Obtainable from Suggestion Systems.—Acceptable suggestions generally accomplish one or more of the following improvements:

1. Saving in labor or office supplies
2. Elimination of delay in handling situations
3. Improvement of equipment
4. Elimination of unnecessary records or unnecessary data
5. Elimination of unnecessary operations
6. Confining necessary operations to a smaller number of people
7. Improvement of service to customers and salesmen
8. Improvement of organization

The Technique of Establishing a Suggestion System.—The following steps should be carefully considered in the development, introduction, and operation of a suggestion system:

1. Determine the needs and objectives of the system.
2. Establish company policy covering awards, participation, and eligibility.
3. Plan method of operation.
4. Work out methods of evaluating each suggestion.
5. Plan for the maintenance of employee interest.
6. Work out methods for periodically evaluating the over-all results of the system.
7. Plan the organization for the administration of the system.
8. Plan methods for giving publicity to the system and the awards made.
9. Plan methods of "selling" new employees on the system.
10. Provide means of making employees aware of suggestion possibilities and methods for their development.
11. Plan for the annual review of rejected suggestions.

THE ANNOUNCEMENT OF THE SUGGESTION SYSTEM.—Many of the points outlined above are illustrated in the following announcement of a suggestion system. It features the selling of the plan to employees because, unless the office workers freely and fully participate, the plan has not accomplished its objectives.

Any man or woman in the service of our company can win an award—or several awards—simply by making suggestions for the betterment of the company. That is really all there is to it—simply say what you think, say it on a piece of paper, take it to the Personnel Office, have it registered and given an identifying number and you have a good chance to win!

You need do nothing except think about how your work or the work of your division or department could be done more quickly, or more savingly, or more efficiently. For instance—you may be in a division in which a variety of office forms come to your attention. You may have thought, "I wonder why they don't make this-or-that change in the forms . . . it would be so much better . . ." Now

the "they" you refer to includes *you*. You are part of the company, by far the greatest asset of the company is its people, "you."

Your work may require contact with other departments and you may have "thought up" an improvement in the routine, but modestly you may have hesitated to say or do anything about it. Your duty, and we hope your pleasure and your profit, will be to "say so" when you have a suggestion that will work to the betterment of the company, whether the suggestion be one of money-making, money-saving, time-saving, convenience, or better service, *all in relation to Methods, Practices, and Systems*.

Don't hesitate any longer! Write out your suggestions in accordance with the following brief rules of the plan:

Each suggestion must be typewritten on a separate sheet in triplicate, and dated. The suggestor's name must not appear on any sheet. Suggestions should be taken by the suggestor to the Personnel Office. A number will then be assigned the suggestion and stamped on each of the three copies. The suggestor will retain one copy.

Forms for use in making suggestions are now available. You may obtain them from your Division Manager or at the Personnel Office. Use these forms for presenting suggestions.

You may be a supervisor or division manager. As such, part of your normal function, because you *are* a supervisor or division manager, is to make improvements in the work under your own supervision. Your "self-suggestion" is your own responsibility, part of your job; hence, suggestions about your own division are not properly receivable under the Suggestion System. *But* you are not only invited, you are *urged*, to make suggestions for improvement in divisions other than your own.

You may be a new or an old employee—it makes no difference, you're eligible for an award, or several awards. You can make as many suggestions as you think to be valuable and each one, if approved by the Personnel and Systems Committee, will be rewarded.

When a suggestion involving money-saving is adopted, a cash award of not less than \$5 nor more than \$50 is paid to the suggestor. *But*, after a "money-saving" suggestion has been in effect for one year, a survey will be made to determine the actual cash saving effected by the suggestion. *If* the actual savings are appreciable enough to warrant further recompense, an *additional award* will be made to the suggestor, of course, if he is still employed by the company. You can see that you have the opportunity to be rewarded not only for as many *different* suggestions as are adopted, but you have a good chance to cash in *twice* on the same idea.

And still more good news! The person whose contribution through the Suggestion System is adjudged to have been most valuable during the calendar year will be recognized by a special award. Not only do you have the chance of winning an award, then of winning an *additional* award after your suggestion has been in effect one year and has proved its money-value, but you also are eligible for a *third* award as the most valuable contributor to the Suggestion System!

A brief, clear statement of the benefit to be obtained from each suggestion should be made—plain, clear wording is better than "fancy words." If it is

suggested that a form be revised, a copy of the existing form should accompany the suggestion, with the proposed revision indicated on the form in red ink, or if this is impractical, a rough draft of the new form is to be submitted. Illustrations are helpful and should be used whenever advisable—simple, “rough” outlines are sufficient; “art work” is not necessary.

To sum up this announcement of our Plan for suggestions: no matter who you are, or how long you’ve been with the company, you now have an excellent opportunity to—

1. Enjoy the distinction of being an original thinker.
2. Bring your department directly to the attention of the entire company.
3. Achieve recognition as a person who thinks beyond tomorrow.
4. Add to your value as an employee.
5. Win from \$5 to \$50—or more—through stimulated thinking and production of high caliber suggestions.

Reports to Employees

Development of the Practice.—Annual and interim reports are employees’ “stockholder statements” giving them financial and operating information about their company in terms they can understand. These are a comparatively new type of report and most companies are still experimenting with them. The opening paragraph of the Metropolitan Life Insurance Company’s Policyholders Service Bureau survey, “The Annual Report to Employees,” attests to their newness and rapid growth:

In 1938 when the Policyholder Service Bureau issued its study, “Reporting to Employees on Company Operations,” it found after an extensive investigation, 44 companies issuing annual reports of their operations to their employees. By the fall of 1939 this number had increased to 116 companies. These included almost all of the original 44 companies.

This paragraph surveys Annual Reports only but, in a more recent study, “Telling Employees About Their Company” issued by the same bureau in 1944, this paragraph appears:

An employee can hardly be expected to feel at home with financial statements if he is exposed to them only once a year. Nor can he be expected to sustain an interest in such statements over a 12-month period. To reawaken interest in and to foster understanding of financial statements, an increasing number of companies are supplementing their annual reports to employees with interim reports.

These interim reports are in substance miniatures of the year-end reports and range from simple earnings statements to pamphlets illustrated with charts and drawings.

Annual and interim reports are increasing in number as companies realize that employees, as well as stockholders, are interested in and have a definite stake in the results of their company’s operations. Employees work better

if they are relieved from the fear of job insecurity and can disprove by actual facts any harmful or irresponsible statements made by individuals not acquainted with the true picture of their company. Thompson Products, Inc. expressed their reason for employee reports in the "Message from the President" on the front page of their 1943 "Annual Report to Employees":

Because few of us can readily understand the conventional balance sheets and profit and loss statements issued annually by corporations, this report to employees of the Thompson organization has been prepared in an effort to set forth clearly and simply the plain facts about the company's income and how it is distributed.

Is the company rolling up fabulous war profits?
Are the stockholders getting rich?
How much business did the company do last year?
What percentage of profit was earned?
How was the money split?
What share did employees receive?
What of future job security?

Thompson management feels that many conflicts result from misunderstandings of these matters, and believes that it is only through correct information that true understanding can come. For these reasons, answers to the questions set forth above appear, simply and concisely, in the following pages.

Answering these questions, simply, concisely, and honestly is the underlying motive of all employee reports. Beyond this spirit there is very little uniformity in the approach, material used, or the physical makeup of the statements.

The Approach.—The approach varies, from the formality of the stockholder report sent out with a special letter to employees by the president of the company, to the American Type Founders' Report which records an informal conversation between the President of A.T.F. and an employee who has been with the company for 35 years.

Most of the annual reports tend away from strict accounting terms and toward a simplified "We" approach. For example, Assets are termed "What We Own"; Liabilities, "What We Owe." Some companies use the correct accounting terms but explain them in everyday language, reducing them to situations the employee can understand. General Electric, one of the first companies to explain company financial and operating policies to employees, set up in their 1920 Report parallel Personal and Corporation columns and compared situations of a personal nature with corresponding corporation accounting terms. For example, "Bill Jones owes you a personal I.O.U." is paralleled by Notes and Accounts Receivable under Current Assets, and the "Money you owe the butcher, grocer, gas or electric company, etc." is like a corporation's Accounts Payable under Current Liabilities.

Many companies, finding that the employee cannot grasp large figures readily, reduce each figure by a common divisor so that they have a financial statement for a miniature company. Illinois Bell Telephone Company did this in their 1938 report by using two parallel columns, the actual figures of Illinois Bell Telephone and the figures for "Little Illinois Bell," the actual figures divided by 33,968.

Contents.—Subject matter varies with the size of the report. Without exception all reports carry a message from the president. This is usually the commentary which clarifies the financial statements given and explains company problems during the past year. While occasionally an annual report may not contain any financial statements, the majority of them illustrate their text with a simplified Balance Sheet or Earnings Statement, sometimes called an Operating Statement, or both. A few companies include a comparative Balance Sheet.

Financial statements are often supplemented with graphs and charts. The most popular is a pie chart which usually represents the company's Income Dollar. This "pie" is cut into percentage pieces for "Wages and Salaries, Raw Materials, Operating Expenses, Taxes, Replacement of Equipment, Surplus and Dividends," etc. Bar and line graphs are used to depict the steady increase in wages over the past five or ten years, employment rise and fall, increase in employee benefit payments, and other matters of employee interest.

Annual reports try to make the employee understand the stockholder's position in the company. He is pictured as a common, ordinary man, often an employee of the company or of another concern, whose money made possible the plants and machinery which created the employee's job. The Eastman Kodak Balance Sheet for 1938 describes Capital Stock and Paid-In Surplus—Earned Surplus as: "This represents the amount that the stockholders . . . have invested to permit the company to carry on its business . . . as well as the surplus earnings, over the year, that the stockholders have allowed to remain in the business to permit growth and building without borrowing money and to provide a reserve against bad times."

To compare the stockholder's share of the company's operations with the employee's, some companies have used a Per Employee, Per Stockholder form of report. Under each item they give three figures, the dollar value, the par share value, and the per employee value. Other companies give merely the actual dollar figure of the item in a stockholder's column and the breakdown per employee in an employee column. In this case, the items are defined from the stockholder's standpoint in his column and from the employee's viewpoint in the parallel column.

Besides financial information, annual reports include other material important to the employee. Many of them sum up the employment situation,

show increases in employee benefits, discuss new products that the company has evolved, and explain the reasons for any changes or new policies in the company.

Physical Make-Up.—The amount of subject matter devoted to these topics depends a great deal on the physical make-up of the report. It may be a plain four-page pamphlet which gives the bare financial facts or a glossy, elaborate booklet, profusely illustrated with charts and photographs. Some companies include their annual report in their house organ, others put out a special issue of the magazine devoted exclusively to the annual report.

The house organ method of presentation is especially good for interim reports which are briefer than annual reports and are used to sustain interest and educate for the annual statements.

Interim and annual reports are set up in all sizes. They may run from a single page to as many as 68, but in a large number they average about 34 pages. The pages themselves range in size from $3\frac{1}{2}$ in. x $6\frac{1}{4}$ in. to 9 in. x 12 in. but the mode is $8\frac{1}{2}$ in. x 11 in.

There is apparently no definite practice regarding the type of paper used. In normal times, paper varies according to the kind of illustration used, the type of printing, and the amount of color. The cover stock is usually heavier than the inside.

A great deal of thought, expert art work, and printing go into these reports. Most of them have special eye-catching cover designs. Many use color. The General Motors 1944 Report uses red, black, and white. As indicated above, charts and graphs illustrate important points. Photographs, sometimes in color, are used to display new products or show the products in action. International Harvester made use of photographs in its 1944 Report to demonstrate its machinery in war. Other reports show pictures of company officers, plants, and employee events. Cartoons are used to emphasize certain points and lend a light, humorous touch to the "cold" figures.

Preparation of the Report.—Who prepares the reports depends largely upon the size and organization of the company. Generally the reports are prepared under the direction of the industrial relations department with the assistance of the public relations and advertising department. Top management sits in usually as an advisory committee.

Sometimes before the report is prepared the company tries to find out just what the employee wants to know about his company. They send out questionnaires or insert a page in the employee magazine or newspaper asking the employees to check a list of subjects and add any of their own that they would be interested in having the company discuss in their annual report.

Distribution.—Reports are distributed in various ways. Those which are included in, or are a special issue of, the house organ are sent through the usual channels. Special booklets may be distributed through these channels or through others. They are often mailed directly to the employee's home. The members of his family thus learn the figure facts about the company for which he works and become interested. If the reports are distributed at the plant or office, the foreman or supervisor may pass them out, sometimes with the pay envelope, or the employees may pick up the reports at the time clock. If it is a company practice to have employee meetings, the reports may be distributed at the meetings where they can be discussed on the spot and employee reactions obtained.

Lacking the meeting method of obtaining employee reactions, many companies insert a post card in the back of the annual report and invite the employees to fill it out by checking their choice of the printed comments and adding any additional notes of their own. These cards are then returned to the president of the company, with or without signature, postage free.

Reports of a Special Nature.—Besides financial and operating statements, companies issue other reports of special interest to employees. The New York Telephone Company issues a leaflet series "What Is The Bell System" which describes the structure of the Bell System. Many companies have put out souvenir booklets. Company history is reviewed in a special commemorative booklet issued by the Underwood Corporation on their 50th Anniversary. Special bulletins and employee letters have been used to point up extraordinary company events or to explain new tax laws or other information which would be beneficial to the employees.

Regardless of the kind of report or its physical make-up, the important thing is the spirit in which the material is presented. The employees must have the feeling that the company is "on the level" with them. Otherwise, no matter how much time and money are spent on putting the report out, it is completely worthless—or worse—it is damaging as far as employee relations are concerned.

Music as a Morale Builder

Music—Aid or Hindrance to Work?—For the past quarter century or more it has been common practice in the cigar-making industry to supply music or someone to read to production workers while they are at work. In this way, their minds are kept occupied while their hands perform highly repetitive operations, which after a period of time had previously produced monotony and inattention. Within more recent years, many types of industry have programmed music to production workers with the same objective in mind. Although the results of providing music are not easily measured,

the extent to which installations have been made is fairly conclusive evidence that the practice provides benefits to management and workers. Several companies have endeavored to measure the effectiveness of the musical programs through employee questionnaires, and while these give some measure of the value of musical programs, they do not tell the whole story. It is a presumed fact that providing music to production workers tends to reduce absenteeism, tardiness, labor turnover, and errors, and in general is an important morale building influence.

Inasmuch as the office manager is faced with a set of problems quite similar to those found in the production departments, it is natural that the question of the desirability of providing music for office workers should be raised. Many companies have suggested various reasons why music should not be programmed to office employees. The most important disadvantage suggested is that it would disturb the employee and thus interfere with the work to the point of reducing concentration and creating additional errors. The experience of those office organizations which have introduced musical programs during working hours has not borne out these fears. Moreover it is interesting to note that, so far as incomplete evidence indicates, musical programs not only do not interfere with the quality or output of office production workers, but rather are welcomed by those whose work is of a higher order and requires steady concentration. There is little evidence to indicate that productivity is increased in those offices where musical programs are offered, but on the other hand there is clear evidence that production has not dropped and the indications are that when sufficient experience is available, the evidence will show better morale, fewer errors, and less tardiness and turnover. A number of insurance companies, banks, mercantile establishments, governmental agencies, and large industrial concerns have introduced musical programs and are maintaining records of effects and results.

Installing a Musical Program.—When a decision has been made to provide music for the office employees during work hours, the next step is to find factual or dependable answers to many questions such as these:

1. Shall music be supplied by arrangements with a commercial organization or through the purchase of music libraries and broadcast equipment which will be operated by company employees? General practice appears to favor the plan of obtaining musical programs through commercial concerns providing such a service.
2. What part should employees play in programming? The subject of programming involves such items as types and selection of numbers, and time, frequency, and duration of broadcasts. To what extent shall employees determine these and various other matters?

In order to find the most satisfactory answers to many of the programming problems, one large company placed the matter in the hands of its em-

ployees in this way. The employees of each organization unit in the office selected a representative who automatically became a member of the music committee which was charged with decision in all programming matters. This committee canvassed the workers to determine their preferences with respect to:

1. *Types.* Symphonic, popular, swing, etc.
2. *Selections.* Specific titles.
3. *Time.* Did they want morning, lunch hour, afternoon or only one or two of these periods? If music was desired in the morning and/or afternoon, at what time should it start?
4. *Duration.* For what part of each hour within the program period should music be played, i.e., 15 minutes, 30 minutes, etc.?
5. *Change of Pace.* Should a unit period be devoted to one type of music, such as symphonic, or should it include a little of each approved type?
6. *Vocal Selections.* Much controversy exists as to whether or not vocal selections should be permitted. They are thought by many to be an unusually disturbing element, but limited experience does not necessarily indicate that this is true. In one concern employees are allowed to hum along with the singer. They appear to enjoy this privilege because they all do it.
7. *Request Selections.* Should one or more periods be set aside each day during which selections requested in writing by employees will be broadcast? This practice was found helpful by one concern in giving each employee a chance to hear his or her favorite selection at frequent intervals.
8. *Lunch Period.* Is it desirable to broadcast during all or a portion of a lunch period and, if so, should the selections follow the pattern established for other periods, or should it be an all-request program?

DECIDING ON PROCEDURES.—It may be well for management to take a hand in determining whether or not all types of office workers shall receive broadcasts and, on the basis of employee reactions, work with the committee in adjusting various other programming difficulties which frequently arise. In any event, management must be concerned with the results of the undertaking and must endeavor to measure the benefits derived from it as well as costs of conducting such a plan.

Results of Musical Programs.—In view of the fact that there are now more than 5,000 industrial concerns providing musical programs to production or/and office employees, it appears to be a reasonable assumption that the benefits are such as will prompt other concerns to introduce music. It is likely, too, that since there is an ever-increasing appreciation of music by all people, there will be an increased interest on the part of office workers

in urging their employers to introduce musical programs. Psychologists are devoting much research study to the use of music in industry and if their findings substantiate the observed results in those concerns which have adopted the practice, this should prove a strong impetus to the widespread introduction of musical programs in industry. It is fair to say, in general, that employers are looking for, and will welcome, such additional means as may be found to improve the health, comfort, and contentment of employees, provided these new means may be fitted into existing situations and can be furnished without excessive costs.

CHAPTER 6

EMPLOYEE ACTIVITIES AND SERVICES

Employee Food Services

Importance of Food Services.—One of the most troublesome problems in initiating food services for employees is to gain recognition of the importance of the effect of such services on day-to-day working efficiency. The proper care of the worker is at least as important as the proper care of machinery if high-level production is to be maintained.

Types of Food Services.—Employee food services can generally be divided into three classes:

1. The cafeteria or self-service restaurant. This is the most common type and the one generally used where office employees are concerned.
2. Canteen service, which consists of sandwiches, coffee, milk, and other cold drinks, and the usual pie, puddings, and other desserts, served on paper plates and in paper cups.
3. Mobile service provided by food carts or trucks which are wheeled through offices and production and operating departments at stated intervals.

The latter two types are used either where the expense of cafeteria service is not justified, or to supplement cafeteria service if that is available only at given mealtimes. In both canteen and mobile services the selection of food and drinks is necessarily limited. In addition to the items listed under point 2 above, packaged candy, gum, and cigarettes may be offered. With these services, unusual care must be taken to be sure that the merchandise is not allowed to deteriorate or become unsightly and unsanitary. Cleanliness must be maintained and the display must be attractive.

Layout and Space Requirements.—Space must be made available for a compact layout with adequate refrigeration, dry storage, and preparation facilities. The layout should call for the most efficient equipment in the way of ranges, ovens, dish and glass washing machines, mixers, slicers, etc., all properly planned to save time, labor, and walking. This should insure good food, well prepared and quickly served. Unless the location and arrangement of equipment are given the necessary consideration in the

original planning, somebody—often the personnel department or office manager—will have plenty of complaints and trouble, and eventually the mistakes must be corrected, if only to obtain economical operation.

Space requirements naturally vary, but experience has shown that 25 sq. ft. for each chair provided is sufficient for all purposes—storage, refrigeration, kitchen, bakery, scullery, service counters, tables, and chairs. Canteen service requires much less space, and mobile service requires only enough room for preparation and loading of the trucks.

The services of an experienced food service consultant should be brought in at the outset. He should be given time to study the specific needs of the individual operation. He must consider the number of employees, the general salary level—which has a decided bearing as to prices to be charged—and all other pertinent factors. If possible, he should be allowed to determine the location of the food service department in its relation to the working parts of the office. There is no standard layout; each must be tailor-made to fit the particular circumstances.

Management Problems.—The biggest problem of all in the restaurant is good management which can make the food service a much appreciated facility and can do much to promote contentment, good health, and work productivity among the office force. Whether to operate the food service as an integral part of plant operation with its own manager, or to let it to an outside contractor, is purely a matter of policy. Both plans have good features, but in either case the final result is totally dependent on the efficiency and care of the management selected. It is advisable to give each plan thorough consideration and, after deciding, to place full responsibility on the restaurant management, holding it accountable for good results.

FINANCIAL CONSIDERATIONS.—Some companies, whose executives consider food service entirely foreign to company operations, provide space and equipment without charge to an outside contractor. This method frequently does not work out well. Dissatisfaction may arise through a number of causes, the most common being that the operator takes a contract on what is usually termed a straight “profit and loss” basis. He is furnished space, equipment, and utilities such as electricity, water, and gas, all without cost, and told in so many words to “make what he can.” This sounds all right, but the hurdles in front of him are almost insurmountable. First, selling prices are limited by the price scale in nearby companies. This scale is invariably lower than the scale used by commercial enterprises which may be serving comparatively poor food. The employees or their union representatives are well posted on this point, and the company and management cannot approve higher prices than those charged in other plants. When the operator finds he cannot buy and serve the best quality of food within the price limits, the temptation arises

to cut both quality and portion quantity. This is where the real troubles begin.

To separate the operation of the food department from company management, and to avoid the constantly recurring problems of "profit and loss" operation, to which union and employee organizations frequently object, many companies have turned to the alternative of engaging responsible food service operators on a fee basis. The contractor takes over and handles all the operating details under his own management, buys all supplies for his own account, hires and pays directly all food service employees, keeps accurate records of all income and expenses, including social security taxes, compensation and other forms of insurance, and at stated intervals renders a complete statement of all income and expenses. For this service he is permitted to include a reasonable fee for management. If the operation shows a deficit, the contractor is reimbursed to that extent. If, as does happen occasionally, a profit is shown, this is usually divided between the contractor and such funds as the employee benefit plan, the company athletic association, or some similar organization.

Under this method, all selling prices, hours of service, and other details affecting employee relations are determined by company management. Beyond this, the company is freed from any operating details except its responsibility to guard its employees' interests at all times. This method also insures continuity of management policies.

TYPE AND QUALITY OF SERVICE.—In some plants there has been a very definite line drawn between the office and clerical forces and the plant employees in general as to type and quality of food services and the surroundings afforded. Also in many companies, there is a regular service dining room for executives. This again is a matter of policy. Regardless, however, of any variation in the food services provided, it is the part of wisdom for responsible executives to have firsthand knowledge of the service in all units. This information will enable them to appraise criticisms accurately and fairly.

QUANTITY AND QUALITY OF FOOD.—The question of quantity and quality is inextricably tied into the financial setup, which again is controlled by the policy outlined by the company management. Obviously the food cannot be sold at the cost of materials, labor, and service, or less, without creating a deficit. General management frequently views the deficit as an excellent investment for employee welfare, accomplishing far more here in dollar for dollar value than in any other place. The amount of deficit is a matter of policy, for it can be controlled by the prices charged and by the amount of service rendered. The deficit varies all the way from 50 cents monthly per employee to as high as \$2.50. A well-known company in Cleveland goes so

far as to give free meals to all "associates," as do many commercial institutions such as banks and insurance companies.

There is only one grade of food to serve in a company restaurant and that is *good* food. The maxim of a leading restaurant in New York City sets the right standard: "There is no compromise with quality." Close attention must be given to planning well-balanced meals. Variety is very necessary, so that the employee can make a selection according to his or her individual taste. Employees resent any effort to "make" them eat any particular thing, and will not do so if they suspect an effort is being made to control their choice. Through the good work of a capable dietitian, they may be guided into wholesome dietary habits, but never forced.

Policies to Keep in Mind.—It is essential that the following points be kept in mind regardless of the type of food service used:

1. The primary purpose of the company restaurant is to safeguard the health and comfort of the employee by providing him with good food served in agreeable surroundings.
2. Results obtained in improved employee morale and increased efficiency prove that it pays to subsidize the food operation to a reasonable extent.
3. Food service should be considered a major item in employee satisfaction, as such. Whatever cost may be involved should be charged to maintaining good employee relations.

Recreation

Advantages of an Organized Program.—Large office organizations and many small ones have discovered from experience that an organized recreational program has sufficient advantages to more than offset its cost. A program of this kind:

1. Builds worker morale and stimulates "esprit de corps."
2. Teaches and encourages cooperation at all levels of the organization.
3. Provides a common meeting ground for employees of all rank.
4. Breaks down the invisible barriers between various office groups.
5. Improves mental stability and self-reliance.
6. Improves the health of employees and helps to keep them in trim for normal living.
7. Helps to develop and bring to the front natural leadership ability.
8. Provides healthy and pleasant pastimes at minimum cost to employees.
9. Helps to attract desirable applicants.

There are many important objectives which may be accomplished through an organized program, among them being:

1. To correlate recreational activities closely with employee interests.
2. To let employees know what, when, and where facilities for activities are available.
3. To provide as wide a range of activities as possible at a minimum cost to employees and company, considering both sexes, all ages, and different types of recreational needs—active and passive.
4. To secure as wide participation in the program as possible.
5. To cooperate with community recreational programs.

Operation of the Recreational Program.—The company should assist in the operation of a recreational program by supplying some financial aid and the services of a recreational director, or part-time services where size does not justify a full-time director. It should be remembered at all times, however, that the company must not be paternalistic and that a recreational program is much more attractive to employees, and therefore of more benefit to them, if the responsibility for its development and management is practically given over to the participants under certain general policies.

Employee illness and accidents frequently result from participation in recreational activities. A company must have an established policy setting forth its responsibility and liability in such matters. Such risks are often assumed through proper insurance coverage.

Many large concerns have organized recreational associations which are incorporated under state law and administered by a board of directors. This corporate organization makes possible the ownership and control of the property needed for recreational activities. In many cases it limits the individual liability of members.

The constitution and bylaws of the recreational association should clearly state its purposes, duties of officers and directors, eligibility for membership, and general plans as to the financing and use of all facilities. Once an association is created, the company should be careful to see that it is not used by management as a bargaining agency on wages, hours, etc. If it is so used, the association might be considered a company union and therefore illegal.

SOURCE OF FINANCES.—The following plans are frequently used to secure finances for an organized recreational program :

1. Contributions by the company
2. Admission fees and "pay as you play" fees
3. Receipts from vending machines
4. Small, regular dues

It is advisable to operate on a budget for the following reasons :

1. It helps all concerned to understand and appreciate the program.
2. It saves management's time.
3. Planning in advance promotes constructive thought regarding the program.

The cost of office recreational programs varies a great deal among companies. There is a tendency for the company contribution per employee to be less in the case of extremely large programs because the recreational facilities are used by a larger number of employees. In no case should the company financial aid be used as an excuse for company domination of the program.

PLANNING THE PROGRAM.—There should be a careful survey of the facilities which are available both at the office and away from the office. The availability of meeting rooms, cafeterias, auditoriums, sports areas, and picnic areas frequently has a material effect on the selection of the type of recreational programs to be offered. It is important to set up worthwhile and attainable objectives as the basis of the recreational program and to be sure that these objectives have a strong appeal to the participants and to supervisors and executives as well. At the same time, the advantages of the program are being featured so that employees will become heartily interested in them. The point that all participation is voluntary should also be stressed.

There will be more employee enthusiasm if the plan is started on a limited basis and expanded as employees learn its value to them. Employees should be given an opportunity to express their wishes as to the type of activities to be included and, where possible, the time and place of these activities.

EXTENT AND TYPES OF ACTIVITIES.—The number of different activities included in a recreational program usually varies with the size of the company and the availability of facilities. Among the most common activities are the following:

1. *Cultural, creative, and mental*

Glee club	Handicraft	Study clubs
Orchestra	Book reviews	Dramatic clubs

2. *Physical*

Gymnastics	Tennis	Golf
Swimming	Volley ball	Badminton
Baseball	Table tennis	Archery
Basketball	Soft ball	Shuffleboard
Bowling	Horseshoes	Rifle shooting

3. *Social*

Dances	Cards	Shows
Skating	Games	

4. *Outings*

Hiking	Picnicking	Cycling
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The Recreational Problem of the Small Office.—The basic needs and desires of employees in a small office are similar to those of employees in the

large office. Sometimes these needs can be met by grouping the recreational activities of the office and plant. In other cases a satisfactory grouping can be arranged by joining in a community project which provides for inter-company activities. It is very important that the activities be carefully picked in a small company, to provide a program that is suitable to both sexes and employees of all ages. A careful study of the advantages of a recreational plan will frequently convince the manager of the small office that it is worth while to arrange for his employees to participate in a community program.

Clubs

Purpose of Clubs.—Office clubs serve the triple purpose of morale building, the frank discussion of conditions or happenings that have not been altogether to the liking of certain members of the office staff, and the better development of relations among employees. A well-satisfied employee is a better worker. Clubs provide social contacts not otherwise available. The organization is all set up for planning parties, dances, picnics, and other employee activities.

Petty annoyances and actual grievances can be told to club officers in the freer atmosphere of off hours and these minor dissatisfactions can be referred impersonally to management for correction without embarrassment to individual employees.

If the number of employees is large enough, departmental clubs may be organized. Athletic or bowling contests between departments may help to give a harmless outlet to rivalry which, without such an opportunity for expression, might become troublesome.

A recent survey among life insurance companies indicated that 34 out of 70 sponsored, directly or through clubs, some form of athletic or social activity among employees.

Organization and Operation.—Size of club is important. It should be large enough to be interesting yet not so large as to be cumbersome. Suggested size is 10 to 50 persons.

Membership should be open to all employees without privilege of exclusion. If a departmental club is organized, all employees in the department should be eligible. Membership should be encouraged, but not compulsory. If club activities are attractive enough and the expense is not too great, employees will want to join.

Officers of employee clubs should be employees elected in the usual manner. To stimulate interest, the term of office should be limited to one year, and no officer should be eligible for immediate reelection to the same office.

SUPERVISION.—If management desires or feels it necessary to exercise some control, a company official or department head may be appointed by the management or elected by the employees to act as club adviser.

Management's supervision of employee clubs should be to see that activities are carried on in a proper manner, but not too restraining. Suggestion and encouragement obtain better results faster than a refusal or denial. Corporation officers should never be officers of employee clubs but can be ex-officio members of an executive committee and thus act as advisers.

Conferences between corporation officers and club officers should be encouraged for the exchange of ideas, solution of annoying personnel problems, and transmission of suggestions both ways.

Chaperones should be required at all employee social gatherings to safeguard the good name and reputation of the company.

FINANCING.—The most practical way of financing employee clubs is through employee contributions of nominal amounts which will cover club needs but will not be burdensome to employees. The contributions may be collected each pay day. If all eligible employees contribute, they will participate in club activities.

Companies should sponsor and pay the entire cost of two or more major employee functions each year. Uniforms, equipment costs, athletic fees, and bowling fees are often a company expense and should not be paid out of club treasuries. Vending machines for soft drinks and candy are often a source of revenue to employee clubs.

Employees should have entire management of funds collected for the club, with a limit set by management as to the total annual amount collected from individual employees.

Educational Courses

Nature, Purpose, and Organization.—The term "educational courses," as used here, applies to the formalized instruction which is offered by a company as a personal service to its employees. The material covered by educational courses often supplements, but generally does not duplicate, the material covered by on-the-job training. Courses are usually taken by the employee on his own time, and he may share in their cost.

The purpose of company educational courses must be clearly defined. For example, they may attempt (1) to help an employee do his present job better, (2) prepare an employee for a better job, or (3) supplement a public educational facility. Regardless of what the purposes may be, they must be clearly defined for accurate evaluation of results.

Courses are generally organized under the direction of an existing personnel activity. Educational committees, whose members represent the major interests to be satisfied, have proved to be good devices for directing. The organization of a program calls for a careful consideration of company policies, customs, and practices; needs and potentialities of the individual

employee; courses available at public educational institutions; experience of other companies; respective merits of "in-plant" and "out-of-plant" courses; physical facilities; and many other pertinent factors.

Employee eligibility is nearly always governed by the company. Employees selected are generally required to have good possibilities for advancement, although many companies offer courses without reservation. Admission to such courses is based on employee interest and initiative. Assisting educational institutions rarely impose eligibility qualifications other than those which all students must meet.

Standards of performance should be set when practicable. Performance can be measured most easily in courses covering skills, e.g., typing or stenography. Results from courses covering the more intangible subjects can best be evaluated by careful appraisal of the employee's future on-the-job performance.

Courses paid for by the employer are generally selected by him. Programs aimed at no specific objective sometimes permit a varying degree of employee choice, although this practice is apparently not general.

Course content depends primarily on the aims of the educational program. The employee's previous attainments can also be most helpful in determining content, since all courses should cover knowledges and skills of a level higher than those already possessed by the employee.

Courses at the college and university level often carry credit toward a degree, although this benefit appears to be of interest more to the employee than to the employer. Notwithstanding this fact, there are many instances of employers totally subsidizing a course of undergraduate or graduate work to qualify an employee for a degree.

Teaching Personnel and Methods.—Use of the best qualified teaching personnel is essential. The successful teacher will possess an expert knowledge of the subject; an attractive and pleasant personality; the ability to arouse and sustain student interest; and will be able to instruct clearly, completely, carefully, and patiently. Incentives for teachers cannot be overlooked—they must be genuinely productive.

Methods obviously will vary, and should be selected to present the subject in the most successful way. The proper methods can be used singly or in combination. Some of the more common methods are:

1. Lecture—to present informational or explanatory material.
2. Demonstration—to clarify principles or to show use of equipment.
3. Conference—to get and modify opinions, and to develop understanding and acceptance.
4. Practice—to develop a performance skill.
5. Discussion—to emphasize factual material, to review, to give reasons, or to make people think.

Any teaching method can be effectively supplemented with such visual aids as sound or silent motion pictures, film strips or slides, or projected charts. Physical aids such as samples, models, and exhibits are also extremely helpful. The teaching method can be considered successful only if the student absorbs, understands, and retains the presented material. Although the method may be varied, tryout of the individual student is the only safe means to check the success of the presentation.

Educational courses are offered by a company in order to reach predetermined objectives. Continual and careful follow-through is necessary to ascertain the results of the educational program. Accurate evaluation of the results is the only sure way of gaining the objectives as originally conceived.

Employee Collections

The Problem and Its Solution.—The matter of taking collections among employees and a good solution of the problem are effectively outlined by the following case illustration. A short time back a large corporation had considerable trouble because of collections taken by employees for others who were sick, getting married, or any one of the many other occasions for taking a collection. Not only was much time lost by those who constituted themselves a committee to collect funds, but solicitation was frequently made from those not particularly interested, with consequent annoyance and dissatisfaction. It was not unusual to have several collections taken in the same week, and at Christmas conditions were worse than at any other time during the year. Janitors, messengers, telephone operators, nurses, and others who render services to employees were considered persons worthy to receive recognition at Christmas.

To handle such matters on an organized basis this corporation circulated a paper among main office employees which briefly stated that if employees were willing to contribute twenty cents a month they believed a fund would be created sufficiently large to provide for all the purposes for which collections are taken. To their great satisfaction, every employee in their office, including heads of departments and executives, signed up. The collection was called "The Gift Fund," and the heads of three departments were made the initial administrators of the fund.

Directly following distribution of the last payroll of the month, someone from each department collected twenty cents from each employee who had signed up and had been with the company for three months or more. A record was kept of all individual contributions, and those who were absent were expected to make up any collections they had missed. It usually took not more than fifteen minutes to collect the fund in any one department. Results from this method of handling a difficult problem proved very gratifying. Employees were keen to see that those entitled to receive a remembrance

from the fund were not overlooked. They had also sufficient money to make cash gifts to those who had rendered special services, such as the janitors, messengers, etc., at Christmas. The corporation management stated that neither they nor their office employees would go back to the old method of soliciting funds for gifts or other remembrances to employees.

Health Maintenance

Environment and Working Conditions.—The health of office workers is a matter of primary importance to the office manager. Aside from the obvious humanitarian reasons, the manager knows that production records depend upon the efficiency of employees. Their efficiency, in turn, depends upon their physical condition.

To maintain the health and efficiency of the personnel the office manager should make sure that the working environment is as near ideal as it can be made. Environment begins with atmosphere and the alert manager will endeavor to create a friendly atmosphere of mutual confidence. Regimentation should be kept to a minimum, for people are not machines and if they are so treated the cost will be high in terms of neurotic employees, absenteeism, and excessive turnover.

Hours of work should be short enough to prevent undue fatigue. The employee who works excessively long hours and has no time for anything but his work, is not a valuable member of the organization. Time and a half for overtime is no substitute for adequate rest and recreation.

Lunch hours should be arranged to allow time for a wholesome and reasonably unhurried meal. In addition, many companies have found that rest periods observed during the morning and afternoon have returned in results considerably more than the cost of the time thus spent.

The physical conditions of the office also contribute their share toward reduction of fatigue and consequent maintenance of health and efficiency. The best in illumination and ventilation are, of course, recognized as imperative necessities. Other required provisions are chairs that induce good posture, acoustical treatment of walls and ceilings to control noise, and reduction of eye fatigue by the use of scientifically chosen colors for walls and furniture and the elimination of glare.

Accident Prevention.—Office accidents, though not so frequent as factory accidents, have been found to be equally expensive in such costs as time lost and impaired efficiency. Most office accidents are caused by highly polished floors, extension cords lying across the floor, inadequate illumination of stairs, defective electric fans, and similar hazards. Someone should be responsible for checking periodically on such dangers. Employees should also be put on the alert against accidents caused by their carelessness or incident to the performance of their work.

Medical Services.—The medical services which a company provides should be governed by the type and size of its operation. These services may vary from the provision of simple first-aid kits and supplies to a completely equipped emergency hospital or medical department on the premises, staffed by full-time nurses and physicians. The company's operations should be analyzed with a view to determining these service needs. Aid and counsel can be secured through such agencies as insurance underwriters or recognized authorities in industrial medicine. The purpose of providing medical service to employees is to assure maximum production, adequate emergency care, and protection against occupational hazards. An ill or ailing employee is a hazard to himself, his co-workers, and the production program.

Records of absenteeism and turnover should be analyzed regularly and thoroughly. In cases of excessive absenteeism, particularly, the causes of the employee's illnesses should be determined. If they do not appear to have an organic basis, a study of the kind of work done by the affected employee should be made. The investigator should try to find whether the work is too difficult or the workload too heavy for that employee. A transfer to a different kind of work is often the answer to continued absence.

Studies should also be made on terminations for reasons of health. Here, too, it is sometimes found that some characteristic of the job itself is responsible and a good employee can be recovered by a change of work resulting from intelligent fact-finding.

FIRST AID.—"First Aid is the immediate, temporary treatment given in case of accident or sudden illness before the services of a physician can be secured" (American Red Cross, *First Aid Text Book*). There are two phases of first-aid activities—service and education.

1. *First-Aid Service.* The minimum first-aid provision which an employer should make should be determined by an analysis of his particular situation, which may indicate that his provisions should be in excess of the legal minimum, for reasons of production as well as protection. Consultation with the company underwriting the liability insurance for the operation or an authority in the field of industrial medicine will provide the basis upon which a first-aid service should be established.

First-aid service need not be limited to the care of accident or sudden illness cases. Consideration should be given to the advantages of providing simple remedies for minor indispositions which will aid employees to continue on the job as they often wish to do in spite of a temporary indisposition. All remedies should be selected with competent medical advice.

2. *First-Aid Education.* Employers should encourage their employees to participate in first-aid training programs. Such programs should be carried on under the direction of qualified instructors. These may be secured through an agency such as the American Red Cross. Such agencies will pro-

vide assistance in the organization of a program. First-aid contests help to maintain interest in this activity.

PHYSICAL EXAMINATIONS.—In the health program, two kinds of physical examinations are given—one of applicants for employment and the other of those already working for the company.

1. *Pre-Employment Physical Examination.* The examination of an applicant prior to hiring him is a multiple protective measure for the employer and the employee. Those applicants who are not physically able to discharge the duties of the job are eliminated from further consideration. In addition, the employees on the job are protected against health or occupational hazards caused by introducing into the group persons in ill health or physically unfit for the work. The completeness of the examination and designation of the disqualifying physical defects should be determined through the analysis of the physical requirements of the job and the advice of competent medical authority. After the physical requirements are set up, consideration must be given to the appointment of a physician who will examine and approve those applicants who meet the standards. In a decentralized operation, the appointment of a supervising physician at the principal office to review the findings of other examiners and pass upon the acceptability of applicants may strengthen control and better protect physical employment standards.

2. *Physical Examinations of Employees.* There are two classes of physical examinations—(a) those made of employees returning to duty after absence, and (b) those performed periodically for the purposes of maintaining the health and well-being of employees.

(a) Permitting an employee to return to duty before he has fully recovered from the effects of an illness or accident involves the same drawbacks as those in hiring a physically unfit applicant. In addition there is the danger of causing a relapse which might result in further absence that could have been prevented by a complete recovery prior to return to work.

Some companies have found it beneficial to make periodic examinations of the employee during the recovery period for the purpose of determining the extent to which he has regained physical fitness and the probable date of his return to work. When desirable, the company examiner may contact the employee's physician for the purpose of discussing the case, and to acquaint him with the company's objectives and policy. These practices are designed to effect a complete recovery and improve the employee's effectiveness when he returns to the job. They should likewise be the result of a sincere interest in the employee's well-being.

(b) The periodic physical examination as a requirement of employment has been used effectively in various companies for many years as a means of detecting physical conditions which, if not corrected, would have prevented an employee from completely discharging his duties and responsibilities.

Where it has been so used there is a complete understanding between the employer and employee concerning the reasonableness and necessity for this requirement. However, in other instances the introduction of the periodic physical examination has met with resistance from the employees. This reaction, if pursued to its source, will be found to be based upon a lack of understanding of the benefits to be derived from the detection of physical defects before they become a serious handicap to the employee, as well as the fear that the employer will seek to discharge workers found to have become physically deficient.

The periodical examination may vary in completeness according to the policy of the company or facilities at its disposal. It may be a routine examination which observes the procedure followed in the one given prior to employment or a complete clinical examination such as would be given in a hospital under the supervision of a pathologist. The findings may be discussed in detail with the employee by the company examiner. In some cases, general discussion is held with the employee and the details of defects are given to the employee's personal physician with his permission. In either event, the employee is encouraged to pursue treatments for the correction or relief of the defect in a manner which will be to his advantage.

Placement of Handicapped Persons.—The placement of persons who are physically handicapped is dependent upon two primary conditions—the nature of the handicap and the nature of the job in relation to the handicap. The nature of the handicap cannot be detected visually in all cases, but may be found through physical examination. For example, it is seldom possible for an interviewer to detect certain types of heart troubles, even though there are indications in the interview that the applicant has avoided certain types of, or all, exercise. The reason for this avoidance may be vague or even the applicant may not know them. However, the physical examination may disclose a type of heart trouble which would prevent that applicant from satisfactorily discharging the duties of a job which would require either lifting a light load or walking up and down flights of stairs. Another applicant may have vision which, even though corrected with glasses in the best possible manner, would not permit him to work continuously with the data or forms used in the work. Either of these persons may be able to perform other types of work, however. The person with the affected heart may be able to work quietly at a desk and the one with poor vision may be able to carry the light load and use the stairways. Even the person with an obvious handicap may be qualified to handle a job in which there is no hazard to himself or others. The success of such placement is the result of careful analysis of jobs with relation to the various types of handicaps. A medical examiner or a person qualified in the field of industrial medicine can provide valuable advice in the placement of handicapped persons.

CHAPTER 7

SUPERVISION

Duties and Responsibilities of the Supervisor

The Supervisor's Job.—The office supervisor sees that work is properly carried out by others from whom he must get results. He is charged with responsibility for the work and for the workers. Usually he has little to do with the determination of major executive decisions, but he sees that policies agreed on by the executives are actually carried into effect. The subject matter with which individual supervisors deal varies from supervisor to supervisor, but there are a great many responsibilities which most supervisors have in common.

The supervisor represents the management to those under him. He is the link through which instructions, orders, and information flow downward, while suggestions, information, and problems flow upward. He must lead rather than drive. His main job is not the direction of things, but the development of people for better performance by them. He delegates to others the job of doing certain work but he cannot delegate the responsibility for seeing that the work is done.

Responsibilities.—The responsibilities of supervisors may be grouped under five major headings: (1) in relation to subordinates or the person one supervises; (2) in relation to superiors; (3) in relation to associates of equal rank; (4) in relation to the work; (5) in relation to self-development.

I. IN RELATION TO SUBORDINATES

1. Select or approve new employees.
2. Get new workers started right.
3. Assign work to the best fitted.
4. See that each person knows what he is to do and why.
5. Train subordinates to do their regular work.
6. Teach subordinates to think out their own problems.
7. Encourage subordinates to take responsibility.
8. Rate or evaluate the work of the subordinates.
9. Train subordinates for greater responsibilities.
10. Choose and train understudies to assist the supervisor and for each key position.
11. Recommend promotions, transfers, dismissals.

12. Recommend salary adjustments.
13. Know each employee's capacity.
14. Develop initiative, interest, and ability of subordinates.
15. Encourage suggestions for improving the work of the department.
16. Commend and encourage the individual.
17. Give credit to those deserving it.
18. Develop harmony, cooperation, and teamwork.
19. Study temperament in order to handle people according to individual differences.
20. Take a personal interest in the staff.
21. Counsel with employees on personal problems.
22. Build and maintain morale.
23. Give loyalty to subordinates.
24. Get the confidence of subordinates.
25. Promote teamwork.
26. Correct false rumors.
27. Handle grievances promptly and effectively.
28. Smooth out personal frictions, jealousies, etc. among subordinates.
29. See that harmonious human relationships are maintained.
30. Maintain discipline.
31. Secure punctuality in department.
32. Control absenteeism.
33. Pass along reprimands from superiors.
34. Give reprimands tactfully.
35. Give orders, directions, and explanations clearly and tactfully.
36. Interpret policies of the management which affect his subordinates.
37. Know the provisions of the company's union agreement, if any.
38. Tell employees of changes before they occur, if possible.
39. Straighten out things not well done by superiors.

II. IN RELATION TO SUPERIORS

1. Find out what the management wants done.
2. Keep superior informed by routine and special reports.
3. Refer promptly matters requiring superior's attention.
4. Assist superior.
5. Report to superior on quality of work of subordinates.
6. Accept full responsibility for work of unit.
7. Avoid shifting blame to others.
8. Refrain from bothering the management unnecessarily.
9. Pass on ideas for improvement to superior and give credit to the suggester.
10. Interpret the employees to the management.
11. Learn to deal as effectively as possible with superior.

III. IN RELATION TO ASSOCIATES OF EQUAL RANK

1. Cooperate with other supervisors.
2. Try to understand problems of colleagues.
3. Coordinate work with other units.
4. Permit interchange and promotion of good clerks.

IV. IN RELATION TO THE WORK

1. Plan work of unit, systematize the details, lay out procedure for each job.
2. Organize to avoid waste of time and capacity.
3. Distribute work fairly according to the individual capacity.
4. Coordinate work of different parts of unit.
5. See that plans are carried out.
6. See that work is done on time, in best possible time, in specified time.
7. Keep costs down.
8. Set standards for amount and quality of work.
9. Check work against the plan and against the standards.
10. Secure accuracy.
11. See that the quality and quantity of work are maintained.
12. Train substitutes so that work can be carried on in event of absences.
13. Plan work so that there is time to plan.
14. Know the work personally.
15. Know the equipment available to work with and possible alternative equipment.
16. Handle problem cases.
17. Anticipate difficulties.
18. Meet and minimize peak loads.
19. Use spare time to best advantage.
20. Watch for new ideas.
21. Keep pace with changing conditions—develop new methods and systems.
22. See that working conditions are good, from point of view of order, comfort, safety, health, etc.

V. IN RELATION TO SELF-DEVELOPMENT

1. Subordinate work of unit to good of company.
2. Know the relationship of the jobs in the section to each other and to the over-all job of the organization.
3. Know the company's policies, rules, and inter-unit relationships.
4. Prepare personally for larger responsibilities.
5. Take more responsibility when opportunity offers.

6. Maintain self-control.
7. Set a good example in : punctuality, efficiency, initiative, neatness, temperament, tact, and general leadership.
8. Keep up with developments elsewhere through reading and contacts.
9. Be aware of the importance of public relations.

The job of the supervisor is obviously a broad one. Perfection in all the items mentioned above is rare, but none should be overlooked in considering the supervisor's responsibility. If a supervisor approached perfection in most of these items, he would probably be promoted to a high executive position and his place would be taken by someone less proficient.

In a small organization, most of the personnel and planning functions are handled by the supervisors. In the larger companies, many details such as conducting tests, maintaining personnel records, planning flow of work between departments, and designing forms are dealt with by a specialized department or individual. The responsibility of the supervisor is not decreased although it may be made less burdensome by the knowledge, contact, and wisdom contributed to the work of the section by the specialists. Supervisors should have a general knowledge of personnel and planning problems even though they may never need to become proficient in the specialized techniques in these fields. The main responsibility of a supervisor is the daily practice of the art of getting a number of persons to work together in a group as effectively as each would work if he were on his own.

Qualifications of the Supervisor

Importance of Leadership.—Competent leadership is the foundation on which sound supervisory qualifications must be based. No matter how perfect the equipment, how efficient the methods, or how ideal the environment, the supervisor will fail to do an effective job if he provides only weak leadership. A high order of leadership is not only desirable as an ideal, but also indispensable as a source of inspiration for effective management. Better results can always be obtained by leading rather than by driving.

In this discussion, the interest is not so much in the type of leadership which manifests itself in sponsoring great causes, or developing new theories of management, or heading large organizations, but rather in the plain, everyday variety of leadership which enables people to be reasonably successful in supervising clerical groups. Because leadership deals with the human equation in terms of supervision, such a responsibility requires great tact and judgment. People are so unlike in their abilities and emotional reactions that they cannot be reduced to any common denominator which would make personnel control a science. Supervision then is an art, and as such it requires conscious development and direction on the part of the supervisor. The

higher the qualifications possessed or developed by the supervisor, the more effective the job he will do and the better qualified he will become for possible advancement to higher levels.

A long list of the qualifications desirable in a supervisor could be tabulated, but among the most important for effective supervision are:

1. Firmness
2. Impartiality
3. Frankness
4. Intellectual honesty
5. Open-mindedness
6. Generosity
7. Executive ability

Firmness.—No matter how thoroughly a man may know his work or how many good qualities he may have, if he lacks firmness he should not be selected to supervise others. People do not like someone who is too easygoing or vacillating; who takes the side of the first person to get his ear; who calls on the most willing clerk for the distasteful job or the overtime work because it is the line of least resistance; who hesitates to step in and iron out unpleasant situations which require a firm hand. A weak supervisor cannot possibly command the confidence and respect of his department.

Impartiality.—People admire and respect a strict supervisor provided he is fair and impartial. He must deal with people as objectively as possible. He must put aside all conscious prejudices, including racial and religious. He must assign the work impartially, at least among those of comparative ability. He must not be deceived by those who try to play politics to get in his good graces. He must not play favorites. As one commentator recently said: "Business is honeycombed with men who play favorites, and pays a terrific price in employee turnover, sabotage, and discontent."

Frankness.—As a rule, people inwardly admire and respect a supervisor who is entirely frank about telling them of their mistakes and shortcomings. He will not accomplish results if he thinks he is being frank by finding fault with the whole department. He must be specific and personal in confidential talks with individuals. Strangely enough, a great many supervisors fail in this respect and tend to let things slide rather than bring someone to account. This practice is most unfair, particularly to new clerks who cannot remedy deficiencies unless they are told what they are and how to overcome them.

People prefer bad news to uncertainty, so they should be told without hesitation that their raise did not go through, that their suggestion was turned down, or that someone else got the promotion for which they were considered. They will be much more unhappy about it if they learn the outcome through the office grapevine.

Intellectual Honesty.—Another desirable supervisory trait is intellectual honesty. People will not respect a supervisor who is two-faced or one who takes credit for the ideas of others, or one who tries to blame mishaps or errors on subordinates when he is primarily responsible, or one who allows a clerk to become an innocent victim of a clash between personalities in the ranks of management.

Open-Mindedness.—Every supervisor should be receptive to suggestions. He should encourage his clerks to bring him new ideas. He should keep an open mind and an open door to people, even though they may come to him with complaints. Such a person should be permitted to state his case without interruption and the supervisor should not show any signs of anger or resentment. It will be much easier to win a battle of this type if the supervisor remains calm and friendly and does not try to start an argument.

Generosity.—People respect a supervisor who takes every opportunity to help them get ahead even though it may mean to the supervisor the loss of a promising person through a promotion-transfer to another department. A broad-minded supervisor knows that he will not suffer by giving due credit to associates under him. He should be generous in his praise. Too many persons are starved for a complimentary word now and then. Although there may be exceptions, most people thrive on a little praise. If the supervisor knocks all the time and does not boost, he will create dissatisfaction among even his best employees.

He should keep in mind that new people particularly are very likely to be constantly wondering how they are getting along—whether they are doing sufficiently well to be retained after a trial period. If they are new in business, they have no criteria by which to measure their own performance. Too often they are left to assume that they must be satisfactory because they have not been told to the contrary. This is a mistake, and positive information about their progress should be given them from time to time. Opportunity is offered at the same time to point out ways in which they may improve.

Executive Ability.—To a large degree, perhaps, executive ability is an inborn trait which should be sought in selecting a supervisor in the first place. Without the ability to organize, control, and expedite the work, without the knack of directing people, he cannot possibly be successful. Where supervisors do not direct and regulate work, department morale is sure to suffer.

Methods of Developing Supervisory Ability

Need and Purpose of Training.—The proper training of supervisors cannot be stressed too strongly. It is the supervisors who build morale into

the working force and are responsible for efficient performance. They are the management in the eyes of the workers. They are the ones on whom the management depends for the correct interpretation and application, down the line, of company policies and procedures. The best training methods cannot make good supervisors out of persons who have no talent or natural qualifications for supervisory work, but even the best natural supervisory material requires comprehensive and methodical training to develop it to its full productiveness.

A well-planned and properly administered training program will arouse interest in, and develop latent ability for, supervisory responsibilities on the part of the promising juniors who may be selected for promotion. It will teach the principles governing human relations, afford opportunity for the practice of these principles under competent direction for both beginners and experienced supervisory personnel, and improve the performance of persons already in supervisory positions, who grew into the work gradually under "rule-of-thumb" methods. In brief, its purpose is to make sure that each and every supervisor represents management to the working force in the way management wishes to be represented.

Who Should Receive Training?—It is not sufficient to train only the junior supervisors and section heads. If possible supervisory training should start at the top of the organization and work down. In many cases top management needs the training as much as do their subordinates, and the willingness of top management to undergo training is very helpful in persuading executives down the line to accept training willingly.

However, inability to persuade top management to undergo training should not deter the training department from starting on any level of management where it can get a foothold, with the purpose of working up and down in the organization as opportunity offers.

Often valuable time can be saved in bringing supervisors up to the point of full efficiency by operating a pre-supervisory training program. Younger men or women of supervisory potentiality may be given selected portions of the training. It should be thoroughly understood by all concerned, however, that selection for pre-supervisory training does not guarantee promotion to supervisory work.

Candidates who are to receive training preparatory to going into supervisory work should be selected with considerable care. It is desirable to consider the requirements of the work and the qualifications of all possible candidates, to investigate the candidates fully in detail, and to weigh their qualifications and fitness as compared with one another and in relation to the results they are expected to secure. In making final selection, the greatest emphasis should be placed on the candidate's potentiality for leadership rather than, as too often happens, on his knowledge of the job.

Responsibility for Training.—Responsibility for the actual training rests with line management. In organizations where it can be justified, a staff group functioning as a training department is very desirable. It can plan, set up, and administer training programs, provide training personnel and material, give consistent direction to and generally motivate, stimulate, encourage, and assure continuity of the training effort within the organization. However, the training department should not be expected or permitted to relieve line management of its duty to train its assistants and successors. Its functions are advisory only. In small organizations a one-man training department can do a fine job if the trainer is the right man.

Content.—It is important that supervisory training be planned and carried out on a broad scale. It should include the development of desirable personality traits and right attitudes, the theory and practice of leadership, a thorough grounding in human and industrial relations, training in work improvement techniques, a knowledge of organizational history, personnel, policies, and procedures, and thorough job knowledge as to office equipment and processes.

An important phase is the development of breadth of view in supervisors. An office manager may know very little more than his chief clerk about the operating details of the office; but he should have a broader viewpoint, know more about many things, have more mature judgment, and have a fuller understanding of all the contributing factors in a problem. An adequate training program should include broadening techniques and stimulation for a comprehensive program of self-development along this line.

The starting of a training program should not be held up until an elaborate, fully developed plan can be instituted. It is best to start as soon as possible with what can be done at once and build on that. "Use what you have, where you are, to get what you want."

Methods.—Training can be intensive before the supervisor starts on the job, or gradual while he is working as a supervisor. Training can be done in groups or individually; both methods are often used together to get best results.

Group Instruction.—One of the most widely used methods is group instruction through conferences. After the instruction period, the subjects are discussed freely by the members of the conference; questions are asked and answered; and there is a valuable interchange of information and attitudes.

Where the group method is used, it is common practice to have the individuals pair off and demonstrate their ability to use the supervisory skills such as related to handling grievances and disciplinary problems.

A valuable by-product of training conferences is the good opportunity which they afford for management to observe the trainees' reactions, atti-

tudes, and modes of self-expression as a help in appraising their qualities of, and fitness for, leadership.

Staff meetings, formal lectures, and college courses are used freely in training programs, as are also carefully prepared moving pictures, sound slide films, and short plays contrasting the right and wrong procedures. Visits to other plants are helpful in developing breadth of view.

Personal Instruction.—Group instruction may be likened to honing a razor on the stone; it takes off the rough edges. The really fine sharpening is done on the strop, and likewise the most effective phases of supervisory training are done through personal instruction in the daily contacts between the manager and his supervisors. The act of revising some letter written by a subordinate, discussing the reasons for certain decisions, or suggesting a little different and perhaps broader point of view on some matter up for consideration, all offer fruitful opportunities for molding the supervisors' opinions and attitudes and leading them into channels of loyalty, justice, tolerance, personal responsibility for personnel and property, and bigness of character.

The solving of the day-to-day problems of supervision affords fine opportunities for teaching and training subordinates. Every such opportunity should be used to the fullest advantage. Even though it may slow down the immediate work in hand, it is building for the future. A supervisor should be required, when he takes a problem to the manager, to take with it the best answer that he can devise. The answer may be overruled; but, in attempting it, the supervisor has learned something and a fully detailed explanation as to why his answer was wrong teaches him something more.

The so-called "progress interview" is a useful form of personal training. At appropriate intervals, the manager makes a rating sheet for each supervisor, on which he marks on a scale or otherwise indicates his opinion of the subordinate on the essential qualities, including initiative, ingenuity, judgment, cooperation, leadership, job knowledge, and dependability. The manager then discusses the report with the subordinate in a friendly, helpful fashion, taking up each subject in turn and the two determining jointly what should be done to improve it. At the next interview, the progress made to date is compared with the plan, and necessary adjustments are made in the plan and in the subsequent performance under the plan. Liberal praise should be given when merited; the interview should not be all criticism.

Written Material.—The written material used can be in the form of a manual on the company's methods of operation, or bulletins dealing with current changes, or other suitable items concerned with the setup and activities of the company.

COMPANY MANUAL.—It is very important that policies, decisions, procedures, and standard practices be written concisely and clearly in a manual.

In addition to affording a source of authentic information for answering the supervisor's daily operating questions, such a manual provides valuable training material when used as a textbook for supervisory training.

BULLETINS.—New rules, procedures and decisions, organization changes, etc. should be sent out promptly in bulletin form and can be used in the training program until included in permanent form in the manual.

Responsibility of Management.—The manager must strive at all times to exemplify the high qualities he wants his supervisors to attain. Nothing has a greater effect on the subordinate. The success of a business enterprise can be only as large as the calibre of the men who manage it, and its success can be perpetuated and increased only if those at the head of the enterprise accept and fulfill the responsibility of developing a continually improving type of management. This requires vision, determination, and the use of the best up-to-date methods of developing supervisory ability.

Techniques of Supervision

Responsibilities Involved.—The supervision of office personnel represents leadership in harness. Operating as it does in the area of human relationships, it is bound to present many challenging problems. Office layout and routines may be changed with comparative ease. Environmental factors may be altered. Equipment which becomes worn or obsolete may be replaced without difficulty. Only as these external factors affect the human element do they sometimes present serious problems. The supervision of office equipment and methods is a simple task compared with the job of training and supervising people.

Take, for example, a battery of a dozen typewriters of the same make. They are all identical. They respond to the same stimuli. They are practically oblivious to environment. They have no personality with the resulting possibility of interplay and conflict. They present no personnel problems. They all require the same kind of servicing. They may be replaced without any consideration of sentiment. If human beings would lend themselves as readily to analysis, supervision, and control, the supervisor's task would be comparatively easy.

Consider, however, the vast difference between the control of these machines and the supervision of the typists who operate them. These people may differ in taste, in appearance, in health, in background, in racial origin, in religion, and culture. They may differ in mentality, in education, in training. They may differ in accuracy, speed, skill, promptness, initiative, thoroughness, aggressiveness, judgment, disposition, tact, willingness, co-operation, inquisitiveness, ambition, and many other traits. As a result, they respond differently to the same type of supervision. They react indi-

vidually under a given set of conditions. Some are bored by routine; others thrive on it. A recital of all these varied reactions would be seemingly endless. Effective supervision must allow for these many differences and for the situations which arise from the impacts and reactions of different personalities.

Techniques of successful supervision include the following:

1. Written instructions
2. Periodic interviews
3. Grievance handling
4. Personnel problems
5. Dismissal
6. Induction of new employees
7. Information for employees

Written Instructions.—Written instructions explaining the performance of the work in detail for purposes of training are indispensable. New people, especially, can be very uncomfortable if the supervisor or instructor tells them more about the work than they can possibly digest at one time. If the methods and routines to be followed are down in writing, they will feel greater security and confidence with such an anchor to windward, and there will be no excuse for deviating from standard procedure.

Periodic Interviews.—Periodic personal interviews with employees are a must in adequate supervision. Such interviews should occur at intervals of not less than six months or more than a year apart. They will provide the supervisor an opportunity for a general appraisal of the employee's services and a frank discussion of his strong points and weaknesses. They will afford the employee a chance to make suggestions, to air any grievances, to give management the benefit of employee reactions to company policies, to discuss his ambitions, and any other matters which may be on his mind. If the supervisor does not take the initiative in providing an opportunity for such a wholesome relationship between his clerks and himself, the department morale is bound to suffer through the neglect of personal problems of which he may otherwise be entirely unaware.

Grievance Handling.—Such periodic interviews will often uncover some misinformation which the employee has acquired through the "grapevine." This is much more common among employees than management realizes. Although the information which the employee possesses may be entirely contrary to fact, nevertheless, it might as well be true if he believes it. Of utmost importance in this connection is the opportunity for airing grievances, for where no such outlet is available there is an excellent breeding ground for discontent. Just the chance to blow off steam carries an element of cure and often the supervisor will discover that grievances which loom

large to the employee will dissolve when misconceptions and misunderstandings are clarified.

Personnel Problems.—Every supervisor, if he is worthy of the confidence of the clerical force, will be faced with all sorts of personnel problems requiring tact and judgment in handling. These may concern personal matters both in and out of the office. He should carefully avoid a paternalistic attitude which might be unwarranted interference in personal affairs. On the other hand, a home situation may seriously affect the work of an employee, and the supervisor has both the right and the duty to inquire into the matter tactfully and sympathetically, for he can often be of real assistance. Above all, he should be sure he has the facts and all the facts to enable him to handle the case intelligently. Otherwise it will be easy to jump at conclusions from hearsay evidence. If some problem is beyond the scope of his authority to handle, such as salary loans, leaves of absence, transfers, etc., he should refer the matter to the personnel department for action.

In general, the morale of a department will be determined by the quality of supervision provided. Employees sometimes tend to reflect the nature and actions of the person in charge, and if he is businesslike, poised, even-tempered, fair, and reasonably firm at all times, a satisfactory morale is sure to result.

Dismissal.—The supervisor will sometimes have the unpleasant duty of recommending the dismissal of an employee who does not measure up to standard. Except in flagrant cases, it is of utmost importance that such people have ample warning of their inability to meet requirements. It is often easy to assume that a clerk must know that he is not satisfactory because it is so obvious to the supervisor. Even though hints have been dropped from time to time, the clerk may still consider himself satisfactory, regarding these criticisms as mere corrections in the training process. He should be given a definite and unmistakable warning that if he does not develop greater speed or accuracy or measure up to certain other standards he will be asked to resign. The supervisor should keep a written record in such cases, as he may be called upon to explain or justify his request for the dismissal of the employee.

Induction of New Employees.—The supervisor can play an important part in any employee induction procedures. If the company has no formulated plan, then even greater responsibility is thrown upon the supervisor. He can follow a systematic procedure for fitting an individual into the organization—instilling in him a sense of belonging and a pride in participating—in carrying out the objectives of the department and the company as a whole. A new employee who is properly inducted into the department by a planned procedure will surely become an effective producer sooner than the one who is turned loose to find his own way.

Proper induction will aim at the following objectives :

1. Give the employee confidence in himself and a feeling of "belonging."
2. Instill in him confidence in his department and his company.
3. Give him complete information about the company, its employee relations, policies, and procedures.
4. Acquaint the employee properly with customs, routines, privileges, and facilities in his new location and introduce him to fellow workers and to other supervisors with whom he may have contact in his work.
5. Give the employee a proper understanding of his job.
6. Arouse his interest in the company and its products and create pride in being associated with it.

If such objectives are accomplished, they should insure reasonably contented and understanding employees, reduce labor turnover and absenteeism, and increase production.

Information for Employees.—Personnel management has long since outgrown the days when it was the vogue to "treat 'em rough and tell 'em nothing." Up-to-date personnel management provides all possible information about the activities, aims, and purposes of the company and the department. It seems altogether creditable that a desire should exist among employees for such information which the best-intentioned executive might think would not interest them and which the worst-intentioned would think was none of their business.

Good industrial relations must rest upon foundations of mutual confidence, trust, and goodwill. The basis of confidence is understanding. Most troubles start with people who do not understand each other. When intentions or motives are misunderstood, when reasons for action, practices, or policies are misconstrued, complete cooperation between individuals is not forthcoming. If management expects full cooperation from employees, it has a responsibility of sharing with them the information which is the foundation of proper understanding, confidence, and trust. This responsibility must be undertaken actively and with sincerity of purpose. Employees are quick to detect insincerity, paternalism, and propaganda, however subtle. Such methods and attitudes are regarded as violations of their self-respect. Under such conditions, they do not give their best to the enterprise.

The employee is more eager to know about policies which affect him personally—his hours, his work, his pay, his chances for promotion—than broad statements about company plans or financial reports. In addition to letting members of the organization know about company policies and practices, it is exceedingly important to tell them in advance about changes that will affect them. If management is going to change certain work methods or routines, or install new equipment, or introduce new policies, those who are working in the departments where these changes are going to be made should be told

about them in advance. Management can build sound morale by taking employees into its confidence in this way, and the changes will be more readily accepted. Again, such a procedure accentuates their feeling of belonging.

Other Techniques.—The techniques discussed thus far have been those more closely associated with the problems arising out of individual employee relations. The more familiar work techniques should be mentioned although they are dealt with in an extended fashion in other sections of this book.

Such tools as organization charts, write-ups and manuals, schedule charts, flow charts, duty rosters, work assignment records, progress reports, and a variety of closely related tools are of great value in implementing the supervisor's ability to direct, control, and coordinate the activities over which he exercises jurisdiction and for the successful handling of which he must assume responsibility.

Psychiatry and Supervision

Key Position of the Supervisor.—The supervisor is the keystone in the production arch between sales and the shipment of the product to a buyer or the signing of a contract and the rendering of service to a client. That is why an employer must make certain that his supervisors have the qualities needed to fit them for their responsibilities. That is why selection is so important.

There are many fundamental qualities that mark the ideal supervisor, determining what sort of person he should be. It is humanly impossible, of course, for one person to possess all the necessary qualities to the degrees required, but the successful supervisor is characterized largely by the extent to which he possesses the following essentials:

1. An abundance of physical and nervous energy.
2. Intelligence—with the emphasis on imagination and a sense of humor.
3. A sense of purpose and direction combined with technical mastery.
4. Enthusiasm, friendliness, integrity, common sense, good judgment, decisiveness, courage to stand up for one's convictions, and faith in human beings.
5. Emotional stability, as illustrated by patience, tolerance, kindness, fairness, open-mindedness, and insight into the problems of others.
6. Teaching skill.

These form the attainments for which the supervisor should strive. Full attainment is never easily reached, but justifiable effort and intelligence are always possible and can be evaluated and measured as a check on the potentialities and efficiency of the supervisor. Human qualities being what they are, it little behooves anyone to set up inflexible standards by which any job, save those checked by mathematics, physics, or the test tube, is to be measured.

Interdependence of human beings is the great imponderable of mass work-

ing effort. No one is more aware of this than the industrial psychiatrist, whose task it is to analyze, test, organize, evaluate, and apply the factors of human motivation and action.

Understanding the Worker.—The supervisor must understand his workers and know their problems. Through this cooperation, the final result will be the successful doing of the job. To this final result, the activities of human beings are applied. By the very nature of work, each person's occupation is closely associated with all his living, and what he does and the income he receives from his job determine to a considerable degree his way of life.

A man is not a man only during his working hours. He lives, breathes, has emotions during every waking and sleeping interval. By virtue of his occupation, he should not be called upon to consider himself two people—one a mechanical performer of acquired skills, and the other, a man who lives, loves and walks his path as best he may. He is one man. To that extent, his employer has a selfish interest in his working welfare—a discreet but total interest in his total welfare.

If such fundamentals apply to the worker, they apply still more to his supervisor. The supervisor has a dual responsibility, not only to his job, but also to the fellow workers whose burdens he must in some degree share. The realization of his responsibility to the workers should go hand in hand with the awareness of his first step up from the ranks. He cannot accept promotion simply as a betterment of his own condition. Such an attitude, in itself, would be fatal to integrated effort.

He must assume an attitude of humaneness—the desire to qualify and raise as many others as possible to his own status, rather than consider himself constituted immediately an arbitrary ruler of those over whom he has supervision and authority. The term “authority” carries the suggestion of personal power which has produced many evils through its abuse. Power is useful only as it applies to mass effort. It can never be used without caution, and it should find its outlet in terms of inspiration and guidance, not dominance and browbeating.

“Humaneness,” itself, is a catch-all expression embodying many qualities. Competition and a “devil-take-the-hindmost” attitude prevent this quality from becoming as evident as it should. Yet, experience has proved that in the majority of cases where personality clashes have been aired in a neutral and democratic atmosphere, the result has been a steadied supervisor and, more often than not, a more understanding worker. There should be an opportunity for supervisor, worker, or any other human component of industry to express himself—not in a public bar or club where his accumulated living dislocations can find relief, but at the point of origin—where he does his work, where he expends his effort.

In the organized sense, a grievance committee is all well and good in its place, but it does not usually consider the man, the individual himself, but rather the company's interests. In the union meeting, he can speak his piece and be heard, but not so on the everyday job. He may have some critical personal problem, but his eight-hour job is still there. Will he run to the personnel department and pour out his anxieties, explain why he is not putting out his best effort? Obviously not. But there is someone who can understand and help if he will. That is the supervisor—the man who, under our business and industrial system, both directs and measures his men.

It is definitely the supervisor's duty to help complete a given task. To do this, he must give of himself, not as in a holy crusade for a production goal, but as his personal contribution to concerted achievement. It is a quality of selflessness and vision that permits the supervisor to regulate his contact with his fellow worker, mirrored against his own working experience. He can have no attitude of smug self-approval. Only from a realistic and fraternal viewpoint can there stem a willingness to discuss, rationally and informally, rather than crack a theoretical whip. Arrogance, above all, can have no place in his make-up.

Barring organizational chicanery, the supervisor, himself, will be an excellent workman, and an example to those with whom he must work. By example, he must bolster the faltering worker, rather than condemn. He brings to his task the final and most important organizational side of the job—liaison man par excellence. There is no question about this taxing his resources of diplomacy. In this role, the supervisor will find himself unquestionably subjected to pressure from top and bottom.

Need for Emotional Stability.—The supervisor, therefore, has great need of emotional stability. It is no small thing, under the stresses of daily production goals, for him to hold constantly high the vision of better things or the goal to be achieved from group effort. But his is the unique opportunity to translate the goal into terms of individual betterment.

The supervisor, himself, embodies individual betterment. He represents to his employees the next step up in organization. He must remove, by his own attitude, any suspicion that he achieved advancement through "pull," conniving, politics, or whatever term a malcontent may choose to apply.

Emotional stability in the supervisor is of concern from the standpoint of industrial psychiatry and should be given proper emphasis. Emotionally sick people, despite their willingness, cannot exhibit good leadership. Mental and emotional ills are not respecters of persons. They may affect the top executive as readily as the rank and file worker. A misplaced worker is, after all, only a minor mistake in placement which often may be readily remedied by an aptitude shift or further instruction. But a single misplaced supervisor is a grievous error. He is a potential menace to a group of people and their

entire assigned jobs. The by-products of a misplaced supervisor multiply into personality clashes, dissatisfaction, frustration, absenteeism, labor turnover, and, in some cases, complete nervous breakdowns.

Let us examine some of the signs of emotional instability as illustrated in actual cases handled by the psychiatrist.

1. Peculiar behavior or mannerisms heretofore not exhibited. Mumbling and muttering to one's self at any time or any place. Moving the head from side to side in a monotonous manner. Silly, shallow laughter. Sudden onset of motor activity not usual for the person. For example, the porter walking through the basement carrying on a conversation with himself.

2. Marked decrease in efficiency without apparent reason—loss of ambition. Such a case is best illustrated by a woman with 15 to 20 years of service, who suddenly daydreams, makes unaccountable errors, shows inability to concentrate, and is constantly preoccupied.

3. Hypersensitivity to criticism which previously did not exist. A perfectly normal well-ordered man suddenly makes obvious errors not in keeping with his previous record. When these are pointed out, he bursts into tears and exhibits the symptoms of mild hysteria.

4. Sudden and unreasoning hostility to almost any suggestion. Often the hostility expresses itself in marked suspicion and jealousy. This is one of the most serious types to deal with successfully. The quiet girl, who when asked by her supervisor to move her seat so that several necessary seat changes may be made, immediately believes this all a plot to get her out of the unit, probably to get her out of the company.

5. Marked change in the usual personality reactions. It is important to note any variation in the individual's usual personality. The shy, quiet, seclusive file clerk may become so friendly that she is boisterous, over-talkative, bold, and aggressive. On the other hand, the loud-mouthed, flashily dressed salesman may appear depressed, quiet, and retiring.

6. Appearance of undue argumentativeness and irritability. This is especially important and is usually caused by extreme physical fatigue or emotional fatigue, but may be the beginning of early mental disease. The "milquetoast" mail girl, who suddenly goes into a temper tantrum throwing pieces of mail everywhere, is a typical example. Such things as these may confront a supervisor at any time. His intelligent understanding can go far to prevent further dislocations among fellow workers, and his sympathetic referral of the condition to proper medical or personnel authorities will be an important step in the solution of the immediate problem.

RECOGNITION OF THE SITUATION.—These people obviously may need some sort of outside general medical or psychiatric help, which a forward-looking organization will have at its disposal in the community. From the personnel viewpoint, the important thing to remember is that recognition of

the situation has prevented the spread of its effect throughout a given group. What is more, prompt rehabilitation of such an employee will cut down labor turnover. The efficient supervisor will be quick to recognize what is wrong and make the proper recommendations.

Selection of Supervisors.—If possible, the selection of supervisors from the rank and file of ambitious workers, who are willing to pay the price of leadership, should be the responsibility of collective judgment. There should be a selection board or group having centralized information and all available records, including pertinent medical and personnel data. Only upon such information as this can valid judgments be made. The selection of a supervisor to secure a well-integrated person for the task is a highly important step. False starts at this point will prove costly later. The very existence of a collective judgment in the selection is a guarantee of neutrality and fair play, particularly as it applies to the intangibles and those factors subject to individual biases.

Job analysis and job specifications, which may be followed by job classification and job evaluation, are necessary, of course, adequately to measure the candidate against the requirements. Developments of such facilities must be the work of a specialist within the given office or company, whose determinations will be passed on to the selection board. Most progressive companies already have such plans or are putting them into effect, covering workers, supervisors, department heads, and, in many cases, executives.

Demonstration devices have been used to good advantage in the selection of supervisors at the first level. Under this title are included all practices designed primarily to provide for the display of supervisory qualifications by placing the candidate in a situation in which he may exercise some of the abilities of a supervisor while a close check is kept on his performance and results.

The ideal training situation in an office would be an existing group of competent, seasoned supervisors qualified to instruct and demonstrate, plus a reservoir of supervisor material qualified and available for training over the necessary period of time. Usually, the only recourse is an early appraisal of the most promising material, and a system of training for supervisors in lower levels so divided as to separate the most promising and progressive from the average and less forward-looking members of the group. This plan provides only a starting point, but it does determine, in the long run, which members of the group are the most capable and likely to succeed in managerial positions.

Any training which carries with it the possibility of promotion is, in itself, an incentive. Following the training period, the company is faced with the necessity of trying to estimate the development of the supervisor. Many companies carry on this check by means of a merit rating plan which includes

a complete appraisal of all phases of the supervisor's performance. Part of this appraisal is, of course, quite easy since the information is obtained from the records—the objective material. The second part is the subjective rating of the supervisor's performance and potentialities in the field of human relationships. In most companies, unfortunately, little, if any, training is given to equip supervisors for this important phase of their work.

Upon the supervisor rests the workaday responsibility of getting the job done. With him lies largely the issue of labor turnover. He is the guardian of office morale. He is the vital link between management and worker. He deserves most careful attention, training, and consideration. Executives may come and go, but the supervisor is the key to efficiency and satisfaction at the point where the real work must be done.

CHAPTER 8

COMPENSATION

Job Evaluation

Purpose of Job Evaluation.—The purpose of job evaluation is the equitable distribution of payroll dollars among employees whose jobs can be appraised or rated at closely approximate values throughout an entire organization or any part of an organization.

Simplicity should be borne in mind when deciding which plan of job evaluation to adopt. When a plan is to be adopted applying to an office organization separately, or as part of a company-wide installation, the office manager should carry through the following procedures:

1. Review carefully the various plans which have been developed and select the one best fitted to the needs of the particular organization.
2. Submit the plan to the management for consideration and approval.
3. After securing approval, explain the plan carefully and fully to the employees who will come under it so that they will understand its merits and benefits, and willingly go along with the idea.
4. Give the employees coming under the plan an opportunity for active participation in its formulation.

Plans in Use.—The plans most commonly in use may be divided into two general groups:

1. Those which involve rank and/or classification.
2. Those which involve rating.

The job classification system groups jobs, according to similarity of work, into a relatively few classes and usually employs wide range of rates for each classification, in order to compensate for length of service and progression into advanced positions.

The ranking system, which is used principally by civil service commissions and smaller business concerns, varies from other systems in that it establishes ratings on jobs by comparing one job with another as to relative work demands and importance, but without breaking the jobs down into specific elements or requirements.

In establishing salary ranges under the ranking system, the plan usually employs numerous grades, and salary ranges are established for each grade.

Much criticism has been leveled at the ranking plan. In most such plans salary ranges are such that it is possible for a person in Grade I, the lowest grade, who has held the position for a considerable length of time, to earn more than the starting rates of, say, Grades II and III. This may be true, even though little, if any, special training is needed for the lower grade, whereas, to successfully fill such positions as are included in Grades II and III, an employee will require training and experience in specialized fields. Certain of the positions in those grades may require the exercise of independent judgment. They may also require that persons filling the positions supervise the work of others who perform the more simple clerical operations.

Job rating plans employ major factors, broken down into subfactors, with relatively narrow ranges being assigned the minor factors, while wider ranges are allocated to the other factors employed in accordance with their relative importance.

Bases of Evaluation.—There are two bases of evaluation employed in job rating plans—one is in terms of money, the other in terms of points. The plan using points is growing in favor and seems destined to become the more popular. This is largely due to two reasons. The first is that the employee working on the job is given an opportunity to participate in the evaluation and so becomes a party to its success. The second is the ease with which points are related to dollars, thus making it possible to use the same point values for comparable jobs at any number of locations where a company may operate and translate these values into corresponding equal money values, in accordance with the proper key going rates in the respective areas.

Because it is indicated that the factor point comparison plan is destined to become the most generally accepted plan for clerical job evaluation, the factors employed by such a plan, their purpose, and a table setting forth factor point value ranges are included herein.

Job Factors or Characteristics.—There are a number of ways into which to break down the factors or characteristics of jobs. The one used here is particularly adapted for the types of work done in offices. Factors selected as the basis are:

1. Elemental
2. Skill
3. Training time on job
4. Memory
5. Analytical
6. Personal contact
7. Dexterity

8. Accuracy
9. Responsibility for company property
10. Responsibility for procedure
11. Supervision
12. Effort
13. Cleanliness of work
14. Position
15. Continuity of work
16. Physical or mental strain

Elemental. This element is credited to each job to be evaluated and covers the normal characteristics required of any employee hired, such as honesty, appearance, deportment, physical fitness, etc.

Skill (General or Special Education). This factor covers the minimum basic knowledge that an employee must have in order to dispose properly of the duties of a job. The education may be acquired either within or without school, and may represent the experience that an employee must have had on previous jobs either within or without the company before he is qualified to fill the job being evaluated.

Training Time on Job. This factor represents the experience an employee must have on the job being evaluated before he can be considered fully competent to handle it.

Memory. This factor represents the demand that is made on an employee for memorizing certain functions of his work. It may range from repetitive, unimportant factors to non-repetitive, complicated factors.

Analytical. This factor represents the complexity of the job to be evaluated and is a measure of the demands made on an employee's judgment and ingenuity to do properly the assigned work. Included therein should be the credit allowed for the number and importance of decisions an employee must make of his own accord without recourse to supervision.

Personal Contact. Personal contact with public, as well as contact with other employees, should be consolidated, inasmuch as they represent varying degrees of contact. This factor should recognize personality and sense of cooperation necessary to meet properly the requirements of the job.

Dexterity. This factor represents the credit allowed for the demands of a natural or acquired physical ability that is necessary to perform properly all manual duties of the job.

Accuracy. This factor gives credit for the degree of accuracy required which will vary because in one job, while the chances of error may be small, the importance of error may be great; in another job, where the chances of error may be numerous, relatively little importance would attach to any one error.

Responsibility for Company Property. This factor represents the responsibility that management places on a certain position for the care of its monies, office mechanical appliances, valuable papers, etc.

Responsibility for Procedure. This factor gives credit for the degree of responsibility placed on a position for performance of duties in accordance with policies or procedures set up by the company. The responsibility may pertain to the drafting of contracts, orders, etc., handling items of a confidential nature, or passing out information where divergence from set procedures may result in a loss of money or time, or would adversely affect operations in own department, operations in other departments, or relations with customers or the public.

Supervision. This factor is used to evaluate supervision exercised over others, such as that of a group leader who, in addition to doing essentially the same type of work, is responsible for the flow of work within the group and, in some degree, for the correctness of the work performed by the group. The number of persons supervised should be considered.

Effort (Physical Factors—Place of Work). This factor should allow for the credit due the job because of physical surroundings and environment, such as noise, heat, light, atmosphere, hazards, etc.

Cleanliness of Work. This factor gives credit for working conditions inherent in the immediate position. The immediate surroundings may be ideal, but the nature of the job may be such that it may be mussy; e.g., mimeograph or ditto operation, the handling of carbon paper, etc.

Position. This factor covers the demands made upon a person to properly dispose of the task. It should be borne in mind that it is desirable to assign jobs so that performance involves some sitting and walking. If a job requires an excessive amount of any one position, credit should be given accordingly.

Continuity of Work. This factor refers to the continuous performance on a job. It may vary from duties that may be normal in nature, where an employee may momentarily change or stop work, to a type of job that requires continued concentration and attention for a definite period of time.

Physical or Mental Strain. This factor varies from "Position" and "Continuity of Work" in that it refers to mental, eye, or nervous strain. This factor would be enhanced by constant interruptions, close concentration, or figure work.

Factor Point Value Ranges.—The following table, taken from a plan published by the National Office Management Association,¹ sets forth in detail the factor point ranges recommended in the plan to be employed in expressing the extent to which each subfactor is essential to the job being evaluated:

¹ *NOMA Bulletin*, No. 1.

I. ELEMENTAL—250 Points (25% of total)

II. SKILL—500 Points (50% of total)

1. *General or Special Education—160 Points*

A. Grammar school or its equivalent— 4×10	40
B. High school or its equivalent— 4×13	52
C. College or its equivalent— 4×17	68
	<hr/>
	160

2. *Training Time on Job—40 Points*

A. 1 to 6 days	0
B. 2 to 4 weeks	1 to 8
C. 2 to 6 months	9 to 20
D. 6 months to maximum	21 to 40

3. *Memory—40 Points*

A. Routine job—minimum memory required	0
B. Memory would be desirable	1 to 4
C. Requires certain items	5 to 8
D. Requires memory of many items	9 to 20
E. Complex items occasionally	21 to 40

4. *Analytical—95 Points*

A. Routine job	0
B. Requires some judgment, ingenuity, and initiative	1 to 20
C. Requires considerable judgment, ingenuity, and initiative	21 to 45
D. Job entirely analytical. No routine, jobs varied	46 to 95

5. *Personal Contact—35 Points*

A. Normal employee relationship	0 to 5
B. Within own department	1 to 5
C. Elsewhere within the company	1 to 10
D. Contacts with the public	1 to 20

Total for complete range 1 to 35

6. *Dexterity—80 Points*

A. None	0
B. Low	1 to 20
C. Medium	21 to 50
D. High	51 to 80

7. *Accuracy—50 Points*

A. Work verified—not serious in case of error	0 to 10
B. Work not verified—not serious in case of error	11 to 20
C. Work verified—serious in case of error	21 to 30
D. Not verified—serious in case of error	31 to 50

III. RESPONSIBILITY—200 Points (20% of total)

1. *For Company Property—25 Points*

A. Not responsible for more than desks and related equipment.....	0
B. Responsible for typewriters, adding machines and/or similar equipment	1 to 10
C. Responsible for cash funds or valuable papers	11 to 25

2. *For Procedure—125 Points*

	Confidential	Loss of Money	Operations in Department	Operations in Other Departments	Relations with Public
None	0	0	0	0	0
Low	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
Medium	6 to 10	6 to 10	6 to 10	6 to 10	6 to 10
High	11 to 20	11 to 20	11 to 20	11 to 20	11 to 20

Compensating factor values applicable to any unusual condition in any bracket..1 to 25
 Maximum applicable to any combination 125

3. *Supervision—50 Points*

A. None	0
B. Low	1 to 10
C. Medium	11 to 25
D. High	26 to 50

IV. EFFORT—Physical Factors—50 Points (5% of total)

1. *Place of Work—5 Points*

A. Good	0
B. Fair	1 to 2
C. Poor	3 to 5

2. *Cleanliness of Work—5 Points*

A. Clean	0
B. Moderately dirty	1 to 2
C. Very dirty	3 to 5

3. *Position—10 Points*

A. Normal	0
B. Tiring	1 to 4
C. Very tiring	5 to 10

4. *Continuity of Work—15 Points*

A. Intermittent	0
B. Fairly continuous	1 to 4
C. Constant	5 to 9
D. Monotonous	10 to 15

5. *Physical or Mental Strain—15 Points*

A. Normal	0
B. Low	1 to 4
C. Medium	5 to 9
D. High	10 to 15

A Standard Pattern.—The plans of job evaluation widely used throughout industry, including offices in industrial plants, for purposes of simplicity have reduced the number of main characteristics and subcharacteristics into a pattern which, with some minor modifications in specific applications to tailor-fit the job to the individual company, is as follows: ²

² Charles W. Lytle, *Job Evaluation Methods*, The Ronald Press Company, New York, 1946, p. 61.

1. Skill:
 - Mental (intelligence, education, experience, training, reaction time, etc.)
 - Physical (manual dexterity, accuracy, etc.)
2. Effort:
 - Mental
 - Physical
3. Responsibility:
 - For people
 - For material things
4. Working conditions:
 - Hazardous
 - Disagreeable

Procedures under the Factor Point Comparison Plan.—This plan requires a complete description of each job to be evaluated. The job description may be prepared by the person actually working on the job. Upon completion of the job description, it should be reviewed by the employee's immediate supervisor, after which it should be referred to the rating committee.

It is worth pointing out that in a great many cases a job analysis for job rating will be prepared in advance of the preparation of the job description. In such cases, the job description should be regarded as a record of the duties involved in any position with appropriate descriptions of the manner in which the work is performed and the precision or decision limits of each duty. It represents a better developed and more extended statement of the job analysis, expressed in terms of the job factors upon which the subsequent evaluation is to be made. It should also be noted that the terms "job description" and "job specification" are frequently used interchangeably. "Job specification" should set forth the human qualifications required to fill the particular job and possibly also those qualifications which will be required for promotion. In many instances the job description and specification are combined and there is no objection to this practice unless the statement of qualifications for promotion tends to influence the rating committee in its evaluation of the factors.

The Rating Committee.—The members of a job rating committee should be chosen from among the department heads and/or supervisors of the various divisions and sections of the organization. Where there are numerous departments within an organization, it will be found advantageous to appoint subcommittees, whose duties will be to make a preliminary survey of the job descriptions prepared by each employee to determine if full details of each job have been furnished, or if a job analysis should be made, and to note thereon such other pertinent information as will assist the rating committee

in deciding relative values. The rating committee should be limited in size and vested with authority to make final decisions.

Rating the Job.—The first function of the rating committee is to sort the job descriptions into closely related groups. A Job Rating Sheet should then be prepared for each job in a given group (see Figure 33). The job rating sheet should set forth the basis of factor rating; for example, if it is determined that the job being analyzed requires the services of a person who has completed two years of high school work, plus six months training as a typist, these facts should be recorded on the job rating sheet opposite the caption "General or Special Education." When the basis of rating each factor has been recorded for all jobs in the group, the committee should proceed with the rating of each factor employed.

The rating should be recorded on the job rating sheet and the committee should rate all the jobs in a given group one factor at a time. Assuming a group of ten jobs is being rated, and the first factor to be evaluated is "General or Special Education," the committee would first determine which of the ten jobs rated highest for that factor and then determine which rated lowest. In some instances, particularly where a large number of jobs may be involved, the practice is frequently followed of determining what job follows about midway between the high and low point. This helps somewhat in narrowing the span and tends to increase accuracy.

Having decided on the high and low of the range, the committee should proceed to evaluate the remainder of the jobs in the group for that factor, in relation to the high and low rated jobs. This procedure should be followed with each factor employed, until all jobs in the group have been completely rated.

Upon completion of the rating procedure, the results obtained should be posted to a Job Rating Summary (see Figure 34). Across the top of the summary are recorded all factors employed, while down the left hand side are recorded all jobs evaluated, arranged in accordance with the total number of points allocated to each. This enables the rating committee to compare the points allocated to all jobs, for each factor, and will disclose any inaccuracies which may be present; such inaccuracies should be corrected at this stage.

Job Grouping.—It will be found advantageous, for the purpose of comparison, to group jobs which fall within given ranges; for example, those which fall within the ranges of 300 to 349, 350 to 359, etc.

When the committee has completed the summarization of its ratings, its findings should be disclosed to department heads and/or supervisors, who should then be given an opportunity to review the ratings with the committee. Any differences of opinion arising as to the equity of the committee's rating should be resolved to the satisfaction of all, after which the ratings should be made known to the individual employees involved before giving effect to the

JOB RATING SHEET				
Job		Department		Division
Group		Supervisor's Title		His Location
Job Duties				
Factors		Rating	Basis of Factor Rating	
(1)	ELEMENTAL			
(2) SKILL	(a) General or Special Education			
	(b) Training Time on Job			
	(c) Memory			
	(d) Analytical			
	(e) Personal Contact			
	(f) Dexterity			
	(g) Accuracy			
(3) RESPONSIBILITY	(a) Company Property			
	(b) Procedure			
	(c) Supervision			
(4) EFFORT	(a) Place of Work			
	(b) Cleanliness			
	(c) Position			
	(d) Continuity			
	(e) Physical Strain			
Total				
Male		Female	Wage Evaluation	Class Date
Remarks				
Signed			Approved	

Figure 33. Job Rating Sheet

plan. At this stage it may again be necessary that the committee revise its ratings because of further inaccuracies called to its attention by the persons whose jobs have been rated.

When rating jobs under the Factor Point Comparison Plan, only minimum requirements should be considered, and those requirements must be determined on the basis of the facts disclosed through careful checking of job analysis and job descriptions. Determination of job requirements must not be influenced by salary rates paid or personalities of job holders.

Relating Point Values to Monetary Values.—With all jobs evaluated on a factor point basis, it becomes necessary to convert point values to monetary values in accordance with going wages in the area or industry.

In determining going rates, reference should be made to community salary surveys. While such surveys will normally furnish rates for occupations, rather than jobs, jobs can be closely related to the occupations listed. With this information at hand, conversion of point values to monetary values is comparatively simple; for example, in one area it might be proven that by applying a monetary value of 30 cents per point, per month, to the factor points allocated to the jobs evaluated, the result would be equal to the average paid in the area or industry for closely comparable jobs, while in another area 25 cents, or 28 cents, per point, per month, would be in keeping with going rates. To illustrate, assuming that the total points allocated to General Clerk A were 850, and to the job of Messenger, 320; $850 \times 30 \text{ cents} = \255.00 ; $320 \times 30 \text{ cents} = \96.00 . If the going rates for these two positions are in keeping with those amounts, then 30 cents per point, per month, is the fair monetary value to apply to factor points.

Maintaining a Job Evaluation Plan.—One of the problems of job evaluation is the necessity for keeping the plan up to date. As offices improve their methods, or change their procedure, job content changes. Therefore, it is necessary to be constantly on watch to detect changes and to revise ratings when such changes occur.

Quite frequently, new jobs are introduced into an office and when such jobs are evaluated, it is very essential that they be rated in relation to all other jobs previously evaluated.

Most job evaluation plans aim only to appraise the minimum requirements of the job. They ignore accomplishment and, consequently, it is necessary that such plans be supplemented with a Merit Rating Plan, or a similar measuring device to compensate for progress, length of service, etc.

Except for the ranking system few plans lend themselves to the determination of the relative value of "Executives," "Administrative" and "Professional" employees' services. Individual companies have worked out plans which appear to be satisfactory to themselves. The consensus is, however, that no standard has yet been established which adequately lends itself to the

evaluation of the services of this type of employee, largely because many of the qualifications necessary to the fulfilment of the duties of the many and varied positions which fall within these classifications are intangible.

Within its limitations job evaluation will serve the purpose of bringing into line salary rates which are presently based on "horse-trading" methods and will disclose existing inequities and inequalities where the practice of "greasing the wheel which squeaks the loudest" has been the basis of salary determination.

Salary Standardization

Scope of Salary Standardization.—Salary standardization is defined as the establishment of a plan, by an organization or by an organization jointly with a collective bargaining unit, whereby a single salary rate or a range of salary rates is assigned as compensation for the performance of jobs having identical or similar values.

Salary administration usually refers to the control of the operation of the plan and includes such functions as approval of salaries to individual incumbents of various jobs, determination of proper salary rates or ranges for newly created jobs, elimination of rates for discontinued jobs, studies relative to required job performance in relation to salary paid, and preparation of periodic reports showing the status of the plan and the resulting salary costs to the company.

Salary standardization and administration are so closely related that the former is not efficiently operative if provisions in the plan are not made for the latter. For years most companies have paid "salaries" to a group of employees for certain work performed during the period of a week, semi-month, month, or year. Many companies have determined the amount of the salary rate on a more or less hit-or-miss basis. Their objection to salary standardization is based on the belief that the nature of work performed by salaried employees does not lend itself to measurement even though every pay check issued uses the dollar as the common denominator.

OBJECTIVES.—The purposes of salary standardization are the establishment of :

1. A salary schedule providing for proper compensation (not too much or too little) for various types of work.
2. Formal procedure for administering the plan and stabilizing salary costs.

Many reasons for these objectives have been cited, such as to

1. Provide for standard hiring rates sufficiently attractive to insure recruitment of new employees but without creation of salary inequities between present employees and those newly hired.

2. Prevent the unconsidered building of random salary rates, some of which might be too high and others too low.
3. Eliminate over a period of time the inequities between salary rates of incumbents of jobs of like or similar values.
4. Establish a procedure to prevent effecting salary increases which would lift rates to an excess of the maximum value of the job.
5. Bring to the attention of management the consideration for promotion of all deserving employees, not just those who may be "remembered."
6. Establish definite periods for review of the salary status of deserving employees.
7. Minimize the number of resignations of better-than-average employees due to their lowered morale directly traceable to the belief that they have been "overlooked."
8. Secure correlation of dollar value of various kinds of work performed regardless of the section and/or location of the business.
9. Provide a basis for comparison with salary rates paid incumbents of similar jobs in other organizations located in the same community.
10. Stimulate employees to prepare themselves for positions of greater responsibility and correspondingly greater compensation.
11. Simplify job contents and job routines through study of job analysis and job descriptions, which usually brings to light inefficient methods and duplication of tasks.
12. Stabilize salary costs.
13. Reduce employee grievances concerned with rates of compensation.

Other reasons may be added to this list. Management techniques and procedures applied in the acquisition, payment, and accounting for, together with use and disposal, of materials have been well established for years. Likewise great strides have been made in the establishment and control of wages for direct and indirect labor. The standardization and administration of compensation paid to salaried personnel has not received as much attention, although a dollar spent for the services of salaried personnel is equally valuable. In some organizations the salaried employees' impressions of seeming neglect insofar as proper salary rates, training facilities, adequate personnel policies, and establishment of grievance procedures are concerned, and of somewhat general inattention, have been contributory factors to their giving consideration to the value of collective bargaining and association with trade unions.

The management of an organization should, as a matter of good business policy, put its salaried house in order regardless of its attitude relative to unionization. The delay in effecting a salary program until collective em-

ployee pressure demands it may be costly both in employee morale and in money.

During the recent war period, while the government was an extremely large purchaser of the products of American industry, the wage and salary stabilization regulations not only gave impetus to the establishment of many programs of compensation rate standardization and plans for the administration thereof, but in some instances compelled such standardization.

What Salary Standardization Covers.—The extent of inclusion of salaried positions in the plan may vary. Much depends upon whether a program covering certain jobs has been in effect and it is desired to enlarge the coverage, or whether no plan has been in effect and a company is literally starting from “scratch.”

A salary schedule may cover any one of the following groups:

1. All jobs classified as non-exempt under Fair Labor Standards Act regardless of dollar value.
2. Positions with a maximum rate of \$300, \$350, \$400, \$450, \$500 or other salary figure where the job value is controlled by the nature of the job content rather than the exceptional personal qualifications of the incumbent.
3. All jobs classified as non-exempt plus exempt jobs up to certain levels of executive, administrative, or professional classifications determined by the management without regard to maximum dollar value.

Content of a Plan.—It is recommended that the salary standardization plan for administration should establish the following:

1. Single rates for positions requiring little or no training.
2. A range of rates, minimum and maximum, for all jobs covered in the plan except (1).
3. Classification of jobs of like value into a group or grade with the same minimum and maximum.
4. Standards of behavior and performance against which an employee's merit can be judged.
5. A procedure for the recognition of meritorious service through approval of “merit” increases at definite periods for deserving employees.
6. A procedure for granting “length of service” salary increases to incumbents of certain jobs where the value of an employee is increased by reason of experience on the job. Such increases should not be confused with the completion of a satisfactory probationary period where the hiring rate was set as the initial value of the job upon the completion of a short training period.

7. A periodic survey of salary rates paid in the community for like or similar jobs.
8. A provision that no employee's salary will be increased beyond the maximum rate for the job.
9. A provision that the salary rate of an employee found to be in excess of the maximum rate for the job at the time the plan goes into effect will not be reduced but every effort will be made to transfer such employees to positions having a value equal to their present rates.
10. Development of forms on which individual personnel transactions may be described and on which space is provided for proper approvals of the management. These completed forms should be subject to audit at regular intervals.
11. Routine for processing approved personnel forms to the payroll section, including list of management approvals, before a transaction may be effective.
12. Policies defining the various fringe issues—vacations, shift differentials, seniority, termination payment, leave of absence, etc. (Although such policies may not be included in an orthodox salary standardization program, these items can be reduced to the common denominator of dollar expenditures.)

Who Should Develop the Plan.—The development of any standard plan requires considerable research and fact gathering, such as job analysis, job description, statistical information, review of current and former policies—both written and unwritten—job specifications, historical background of the company, salary procedure, etc. This effort together with the development of the plan for management approval may be performed by:

1. Present employees—the “home team”
2. An outside consultant
3. A combination of (1) and (2)

Some of the suggested advantages of using the “home team” are as follows:

1. Employees possess a great amount of information because they are closely associated with the work detail being analyzed.
2. Through experience they can feel the pulse of the organization and forecast fairly accurately the reaction to suggested policies.
3. They have acquired a knowledge of the results of the company's personnel program and the attitude of supervisors.
4. They will have a personal interest in the development of a program as well as in its maintenance.

5. Because the finished product will be theirs they will endeavor to sell the plan to less enthusiastic employees.
6. Information which a company may consider confidential such as processes and certain costs will be kept within the "family."

Advantages of Using Outside Services.—Some advantages in using outside services are :

1. Capable company employees may not be available because they are busy with their daily tasks.
2. The techniques of analysis and development of the plan may have to be learned by the employees, whereas the outside specialist makes his living by doing such work. He does not have to learn it.
3. If, as is often the case, employees may give only part of their time to the job, they may take longer to finish it, whereas the outsider can devote undivided attention, thereby getting the job done more quickly.
4. The outsider may have more prestige with those from whom he secures information.
5. The outsider would be less apt to be influenced by personal prejudices or traditional bias.

Type of Schedule.—In the paragraph entitled "Content" are noted various items which should be given consideration for inclusion in a plan. Although this list does not confine itself to salary rate schedules, the schedule is the backbone of the plan.

Before a satisfactory schedule can be built, analysis and evaluation of all jobs to be covered are necessary. With such information available, a classification can be arranged. Regardless of the method of evaluation—point system, factor comparison, ranking, etc.—it is the normal practice to classify like or similarly evaluated jobs into groups or grades for each of which an adequate salary rate or salary rate range is determined. Salary schedules in some organizations include a single salary rate for certain grades. Also many schedules have a range of salary rates for each grade. The usual reasons advanced in support of the latter is the desire on the part of the company to provide for granting of merit or length of service increases. Proponents of the single rate idea for certain jobs in the lower brackets claim there is no reason for paying either more or less than the scheduled "single rate" for a job requiring little or no training. They further assert that the incumbent's value to the company while assigned to such jobs is no greater after six months' service than after six days' service. If reward is due such an employee it would be well to promote him to a better job. Many factory wage rate jobs are assigned single rates.

Obviously the type of schedule to be built is one which will be most effective in establishing the proper compensation reward to the employee and at

the same time maintain a proper relationship with the cost of the company products manufactured or services rendered.

Salary Grades.—There appears to be no uniformity as to the number of salary grades in the plans reviewed. Most of them are designed to include from 10 to 30 grades. If a schedule is based upon single rates for all jobs there will be as many grades as there are different job evaluations.

E. N. Hay³ recommends that the rate ranges of grades in a well-designed schedule overlap about $4\frac{1}{2}$ grades; the minimum of the grades will have a uniform rate of progression approximating "1.1 to 1.2 depending somewhat upon the industry and locality"; provision for "a uniform number of steps from minimum to maximum—usually these steps are 5% of salary, but they may be decreased or increased in bad or good times"; the spread between the minimum and maximum of each grade will be about $33\frac{1}{3}\%$. The following example is quoted from Mr. Hay's article:

<i>Minimum</i>	<i>Maximum</i>
\$120	\$130
135	180
150	200
170	225
190	250
210	280
235	315
265	355
295	395

Periodic Comparison.—In order that a control of salary expense be maintained it is recommended that regular periodic reports be prepared covering the status of salaries paid. Unless a schedule of rates is based upon the "single rate" idea there will be fluctuations in rates paid for jobs in the same classification due to the hiring of new employees at the minimum, granting of merit increases, effecting of promotions, and terminations.

In cases where a salary schedule consists of single rates the control of salary expense consists of the following:

1. Up-to-date survey at all times of the proper number of incumbents in each job classification.
2. Periodic determination as to the adequacy of single rate paid.

In cases where the salary rate schedule consists of rate ranges for each grade the control will consist of:

1. Up-to-date survey at all times of the proper number of incumbents in each job classification by grades.
2. Periodic determination as to the adequacy of the rate ranges established.
3. Up-to-date report of the status of rates paid.

³ E. N. Hay, "Control of Salary Expense," *Financial Management Series*, No. 79, American Management Association, New York, 1945.

Various techniques to handle the latter are used. One of the most common is the maintenance of a report showing the number of employees and average salary paid to incumbents of each salary grade by classification.

Salary Grade by Classification	Number of Incumbents	This Date	Average of Salaries Paid Last Quarterly Report	This Date Last Year
#1				
2				
.				
.				
10				
<hr/>				
Total				

$$\text{Total Salary Expense} = \text{Total Number of Salaried Employees} \times \text{Average Salary}$$

This type of report reflects the distribution of actual expense among the various salary grades and classes. It serves a good purpose in that it is a statement of facts and can serve as a guide to controlling the salaries of each grade. One might add to the report a comparison between the average salaries paid and the minimum, mid-point, or maximum of each grade.

E. N. Hay⁴ recommends, among other control methods, the use of an index termed "compa-ratio" developed in connection with the use of factor-comparison job evaluation methods but states that

... it cannot be assumed that they will work equally well with ordinary "point methods" which, in most situations, are less accurate.

The compa-ratio for a department is obtained in the following manner: For the numerator of the ratio, take the sum of all the salaries in the department. For the denominator, take the sum of the midpoints of the ranges for all employees. The resulting fraction, multiplied by 100, is the compa-ratio. Thus, when the compa-ratio is 100, salaries, on the average, are exactly at the midpoints of the various ranges. In calculating the compa-ratio it is advisable to use the geometric midpoint rather than the arithmetic. The geometric midpoint for a salary grade with a \$150 minimum and a \$200 maximum is slightly less than the arithmetic midpoint of \$175, being approximately \$172.50. (The spread of the particular salary grade of \$150 to \$200 is 33 per cent. Consequently, if the minimum (\$150) is multiplied by the square root of 1.33, the result is the geometric midpoint, \$172.50. This geometric midpoint, if multiplied by the square root of 1.33, becomes \$200, the maximum.)

Since the object of salary control is to stabilize salary expense, this can, as has been pointed out, be done by keeping the compa-ratio at 100. This is accomplished by awarding as much money per year in salary increases as is gained by reductions in salary through the death, retirement, or resignation of high-salaried employees, replacing them with newly employed or promoted employees whose salaries ordinarily will be lower.

⁴ *Ibid.*

The foregoing brings to the attention of the reader pertinent facts relative to salary standardization and administration but is, of course, not complete.

Administration of Job Evaluation and Salary Standardization⁵

The Process of Determining Relative Worth.—Job evaluation is the process of determining the relative worth of a job in relation to other jobs. Probably the easiest way to demonstrate what it does is to visualize a stairway with the lowest value job at the bottom step and the highest value job at the top step. In between, in the order of their relative importance on the intermediate steps, are the jobs which in terms of relative value fall somewhere between the lowest and the highest jobs. This stairway provides a framework in which jobs are distributed in terms of their proper relative values. This is the purpose of job evaluation.

Salary standardization is the process of establishing salary rates or rate ranges, which can be associated with job values in order to provide a means of paying for jobs in proportion to their relative worth as determined by job evaluation methods. The proper use of such rates or rate ranges provides a procedure whereby jobs of the same or equal value are paid for at the same rate or within the same rate range, thus insuring that actual payment for jobs is made in proportion to job worth. This is the purpose of salary standardization.

The combination of job evaluation—proper job values and salary standardization—rates or rate ranges reflecting proper job values—comprise the salary structure. This is the basic pattern adopted to provide proper job values and corresponding equitable rates of pay. The administration of proper job values and corresponding equitable rates of pay involves something more than just job evaluation and salary standardization. It involves a knowledge and a consideration of the entire salary payment program. These two procedures have to do only with inanimate jobs; it remains to relate their product, the salary structure to the employees who perform these jobs. This then opens up the field of consideration and appraisal of human qualities, abilities, and performances. It further extends itself into the field of basic management policies, contractual relations with unions, compliance with federal laws and directives affecting labor relations, various methods of salary payment plans, etc.

Therefore, the question arises "Is it possible or desirable to attempt to discuss the administration of job evaluation and salary standardization separately, or is it necessary and desirable that in any discussion these be related to the over-all problem of salary administration?" . . .

⁵ Reproduced with permission of L. B. Michael and American Management Association from "Incentives and Work Standards in the Office," *AMA Office Management Series*, No. 115, 1946.

Probably the first thing to be realized is the fact that job evaluation and salary standardization are only a part of the tool kit required for successful salary administration. The mere introduction of these two procedures does not constitute a "panacea" which guarantees that equitable wage treatment and the solution of all salary administration problems automatically follow. If one has been led to believe so it is both unfortunate and untrue.

These two management tools can do much to provide a firm foundation on which can be built successful salary administration. However, continuous education, guidance, and checking are required to see that they play their proper part in achieving equitable salary administration. To be of maximum value these two tools must be properly and thoroughly integrated into the over-all salary administration program.

In discussing this subject, it is the author's desire to treat it in such a way as to be of maximum value to as many of the readers as possible. Considerable recognition is given to the fact that a majority of the readers represent smaller companies. Accordingly, the treatment of any subject should be handled in such a way as to be of maximum benefit to the majority of those represented—the smaller companies. For this reason, this discussion does not represent a case study of any large company. Rather it represents a presentation of basic fundamentals which it is hoped can apply to any company—large or small.

Salary Administration.—Salary administration is generally a collective, not an individual, function; usually every supervisor from the lowest level to the highest level has a part in the program. In addition, non-supervisory personnel in the industrial relations department, personnel, and similar organizations have a definite part in the program. In fact there is probably no other single function of a business in which so many people participate in its administration. For this very reason, it is necessary, even perhaps mandatory, that each be generally acquainted with the over-all program and particularly acquainted with their own specific part in the program.

The problem of salary administration naturally breaks down into several major divisions and subsequently within each division into a number of individual component parts. The manner in which the over-all function is administered within a given company varies widely, depending on the size of the company, its policies, its union relationships, and other factors peculiar to a particular company.

In some cases, one or two people may perform the complete over-all function involving all of the major divisions and the associated components of each division. In other cases, one or more specialists may be assigned to only one or two components and the over-all function performed by a number of individuals or groups, each having a specialized responsibility. Where this occurs, the carrying out of the over-all function is usually coordinated by an

administrator of high management rank. Between these two extremes there may be any number of variations and combinations of responsibility depending upon the conditions existing in a particular company.

However, there is a common prerequisite for successful salary administration, regardless of how the function is assigned and performed. This is a visualization of the complete program, a knowledge of the individual component parts, and an appreciation of the interrelationship of the individual components as they affect proper performance of the over-all function. Unless this knowledge and appreciation are present, there is a constant hazard of contradictory decisions and practices which may substantially impair the soundness and effectiveness of the over-all program.

In order to provide this knowledge, an educational program is necessary for all of those who play a part in a salary administration program. The difference between the establishment of good sound administration policies and practices and their actual realization is almost in direct proportion to the kind of job top management has done in passing along information and in educating and training supervisors in its proper use. First line or lower level supervisors are frequently criticized for inadequate performance of their salary administration functions—yet in how many cases is this due to: first, the lack of any definite or concrete information as to what such duties are and, secondly, in some cases the absence of, and in others a very inadequate form of, instruction or training in the performance of such duties.

Successful salary administration depends not only upon the existence of a set of formalized policies and practices but even more upon their being exercised in the manner in which they were intended. This result can be accomplished only through education, training, and instruction.

Over-all Program of Salary Administration.—In order to carry out such an educational program there must first exist a concept as to what the over-all program of salary administration is and what it consists of. Many have a general idea of what this is yet might have difficulty in trying to express it in a tangible form. A proposed outline of the over-all program of salary administration which is divided into five major divisions is as follows:

1. *Basic policies*, which are the fundamental principles or courses of action around which the salary structure is evolved, established by labor legislation, bargaining agreements, or unilateral action by management.
2. *The salary structure*, which is the pattern adopted to provide proper job values and corresponding equitable rates of pay for jobs.
3. *Indirect payment practices*, which are the procedures adopted to provide for supplementary compensation for so-called "fringe items," such as vacations, holidays, overtime, night work, bonus, etc., for which no additional productivity is required.

4. *Direct payment plans*, which are the means adopted to relate salary structure job values and salary rates or ranges to employee work assignments.
5. *Employee assignment, performance appraisal, and salary adjustment*, which are the procedures adopted to insure proper selection and assignment of workers to jobs, measurement of employee performance on jobs, and adjustment of individual rates of pay.

In the administration of such a program, as in the building of a house, or the operation of a machine, there are certain rules, laws, or requirements which must be known, observed, and complied with. These are the foundation on which the salary structure is built. Obviously, it is necessary to know what rules, laws or agreements exist and what they require. These are the basic policies of a salary administration program, and can be classified under the three subdivisions of labor legislation, bargaining agreements, and management policies, as follows.

LABOR LEGISLATION.—During the past fifteen years more federal control of labor relations has been effected than in all the previous history of the country. What the future holds in the way of additional regulation is unpredictable. However, the highly complex and involved system of federal, and in some cases state, laws and regulations now in existence make a general knowledge of these an essential prerequisite for one working in the field of salary administration.

BARGAINING AGREEMENTS.—Since the passage of the National Labor Relations Act in 1935, the number of employees belonging to or represented by labor unions has increased tremendously. There is at this time a definite trend toward increased representation of office workers by labor unions. Where labor unions are in existence there exists a desire on the part of union leaders to incorporate in contracts or bargaining agreements more and more matters relating to wages, hours of work, conditions of employment, and the settlement of disputes. A knowledge of what agreements have been reached and which are in effect is equally necessary to one working in the field of salary administration.

MANAGEMENT POLICIES.—These are unilateral actions initiated by management as a basis for establishing, maintaining, and furthering healthy employee relations. The scope and degree of such actions vary according to the situation involved, which is generally one or the other of the following: (1) Where there are in existence no contractual relations with any recognized labor organization. (2) Where there are in existence contractual relations with one or more recognized labor organizations for certain groups of employees. In either case, because of the limitations as to the area of representation by collective bargaining agencies, there are certain groups of

employees not represented by recognized labor organizations. For such groups it is necessary for management to establish certain basic policies with regard to its employee relations program. Again, a knowledge of such policies is necessary for one working in the field of salary administration.

Before salary rates or rate ranges can be established there must first be established jobs, or tours of duty; second, these must be studied, analyzed, and evaluated; third, salary rate information for comparable jobs in the area or industry should be obtained and analyzed in order to provide information which provides a comparative basis from which salary rates or rate ranges may be established. These procedures provide the basic data required to establish the salary structure.

After the salary structure is established, certain procedures and practices must be set up to cover indirect salary payments for the so-called "fringe items" such as overtime, holiday pay, vacations, etc. The procedures adopted to provide such supplementary compensation over and above actual base salary rates or earned rates, including the effect of incentive, bonus, or commission plans, are included under indirect payment practices.

With the salary structure and indirect payment practices established, it is next necessary to determine the types of direct salary payment plans to be adopted for the various kinds of office work. These may be either payment for a definite job assignment for a specified period of time at an agreed-upon base salary rate as such, or the base salary rate supplemented by some form of incentive, bonus, or commission plan earnings or both. The decisions as to which kinds of direct payment plans are to be adopted and introduced and the corresponding procedures adopted are included under direct payment plans.

Practices and Procedures as Related to Employees and Employee Performance.—Up to this point we have dealt primarily with jobs, rates for jobs, direct payment plans for jobs, and indirect payment practices. It is now necessary to relate these practices and procedures to employees and employee performance. This involves the selection and assignment of employees to specific jobs—the measurement of employee performance on a specific job—and the assignment and revision of salary rates for employees in relation to their performance and in accordance with established wage scales and labor contract provisions, where they exist. These procedures are covered under employee assignment, performance appraisal, and salary adjustment.

Salary administration is the function of carrying out the policies, practices, and procedures provided within these five major divisions.

Salary administration through the use of job evaluation and salary standardization carries with it certain implications and requirements which should be recognized at the outset and an agreement reached as to how they will be handled. First, it should be recognized that job values and salary rates

apply to all of the organizations included in the program. As such, this will involve some concession of individual organizational authorities and prerogatives in the interest of a uniform practice. Second, there should be established certain common rules of procedure to be followed by all organizations in the use of job values and salary rates. Third, there should be a central organization which is delegated to operate and maintain the job evaluation and salary standardization programs.

Requirements for Effective Salary Administration.—In order to attain effective salary administration through the use of job evaluation and salary standardization procedures, there are a number of requirements which should be conformed to. The following 15 requirements represent those which are the most important:

1. That all jobs involved in the program are studied, described, evaluated, and assigned a job value.—It is recognized that most job evaluation plans have limitations as to the range and type of work for which they can be properly applied. Where jobs obviously are beyond the scope of the plan being used they should not be evaluated by that plan and it is a serious mistake to attempt to do so. However, where jobs definitely fall within that scope of the plan they should be adequately described and evaluated without exception. It is both unwise and unhealthy from an employee morale standpoint to refrain from evaluating certain jobs when similar or comparable jobs have been evaluated.

2. That salary rates or scales are established for all jobs or groups of comparable jobs.—Job values obtained through job evaluation methods are practically worthless unless their relative values are in turn reflected in payment for jobs through the establishment and use of salary rates or scales which maintain the general relationship derived through job evaluation methods.

3. That standardized job titles are established.—In most offices the same job exists in more than one organization such as stenographer, report clerk or secretary. Unless there is some standardization of titles it frequently occurs that the same job is called by different titles in different organizations or the same title is used for different jobs in different organizations. The adoption of a standardized set of job titles not only will reduce the number of titles in use but also will result in a more uniform concept of each title and the use of the same title for the same job in all organizations.

4. That all employees involved are classified under their appropriate title and job value and advised accordingly.—If the results of job evaluation and salary standardization procedures are to be successfully applied they should not be kept a secret as this merely arouses suspicion. All employees involved in the program should be classified under the proper job title and job value and where necessary their rates adjusted to conform to the established salary scales. The employees should then be advised as to their

titles, classifications, and salary rate ranges if such are used. Where labor unions are involved, this will undoubtedly involve discussions with the union representatives.

5. That the use of job titles and job values by individual organizations is authorized and controlled by a central organization.—It should be recognized that all jobs do not exist in all organizations. For example, there should normally be no need for an accounting clerk-senior in the legal department. Furthermore, it is conceivable that a secretary-A would be required in one organization whereas only a secretary-B or a secretarial stenographer would be required in another organization. Unless some form of control is established, it is conceivable however to find after a period of time that the secretary-A job is occupied in all organizations. If so, the undermining of the results of job evaluation and salary standardization are well under way. Such a situation results in the overpayment in certain organizations for the job performed, and in inequitable treatment to employees being properly paid for their job. For this reason, the authorization of the use of job titles and job values should be delegated to a central organization which should control the proper use of job titles and job values through the means of authorizing their use only in organizations where the jobs properly exist.

6. That a uniform practice be observed with regard to use of hiring rates and rate adjustments in connection with transfers, upgradings, and downgradings.—Considerable time, study, and effort are involved in the establishment of proper job values and salary rates or rate ranges in the interest of proper relative values. However, such results can be almost completely nullified, unless in the actual process of administration of job values and salary scales uniform practices are followed by all organizations in properly classifying their employees in accordance with the jobs they actually perform and in the use of hiring rates and the making of salary adjustments at the time of transfers, upgradings, and downgradings.

7. That the filling of all job vacancies clear through a central organization to insure equal promotional opportunities for all qualified employees.—One of the advantages of the use of a job evaluation system is that for specific jobs it provides factual data which are usable in employee hiring, selection, placement, rotation, and promotion. The relative value of jobs being known, it is logical to expect that when job vacancies occur they should be filled, where possible, with existing employees who have been performing jobs which involve duties and responsibilities which have offered training for the jobs vacant. Regardless of their present organization location, such vacancies should be filled on the basis of selecting the most qualified employee having the required training and experience and consideration should not be confined only to employees in the organization where the vacancy occurs. The clearing of all job vacancies through a central organization can do much to provide equal promotional opportunities.

8. That some form of procedure be provided for appraising and measuring individual employee performance.—Job evaluation and salary scales provide the means for establishing job values and their associated salary rate ranges. However, job evaluation has as its objective the measurement of jobs, not people. In determining the relative position of an individual within the proper salary rate range an appraisal and measurement of each individual employee's performance on their specific job is required. Such a procedure is commonly called man rating, merit rating, or performance rating. An additional appraisal is also necessary in terms of each individual employee's potentialities from the standpoint of his ability to assume and perform more difficult and more responsible assignment. These two forms of appraisal apply to different things, one to performance on a specific job and the other to his ability to assume more difficult and more responsible job assignments. In the use of any form of so-called "man rating" this should continually be borne in mind. Some procedure should be provided to periodically review and appraise employee performance and potentialities in a manner as nearly uniform as possible in all organizations.

9. That all changes in employee classification by job value and title and changes in employees rates be cleared through a central organization or committee, such organization or committee to maintain consistency of rate treatment and to certify that promotions, etc. are bona fide.—Without the guidance and controlling influence of an impartial central organization, there sometimes develop in various organizations different yardsticks as to when promotions should be made, when changes in job titles and job values are justified, and as to what salary rate treatment should be accorded when changes are made. The clearing of all such changes through a central organization can do much to insure uniform treatment throughout the entire organization and consequently more successful salary administration.

10. That a uniform practice be followed in distributing job titles, job descriptions, job values, and salary scales to all interested organizations and supervisors.—In order for those who are concerned with salary administration to properly fulfill their part of the program they need to be supplied with certain information such as job titles, job descriptions, job values, and salary scales, or rate ranges. To insure that they receive this information a uniform practice should be established for the prompt distribution of such information.

11. That adequate instruction and training be furnished to supervisors as to their function in the program and how it is to be performed.—It is not only necessary that adequate information be provided supervisors but even more necessary that they be given proper instruction and training in the manner they are to perform their part in the salary administration program. The success or failure of the over-all program depends largely on the provision of such training and instruction.

12. That employees and union where involved are fully informed as to the job values and salary scales adopted.—The use of job evaluation and salary standardization represent generally accepted management techniques and their results are considered to be fair and equitable. Management should not attempt to conceal these results but should fully inform the employees and unions, when involved, of the job values and salary scales adopted.

13. That adequate means are provided for supervisors to request review of job values where changes in methods or job content have occurred or where new job values are required because new jobs have been created.—Frequently changes occur in existing jobs due either to new or changed methods or changes in actual job content. Likewise, new jobs are created and existing jobs eliminated. Many times, due to pressure of work or business activity, such changes or the creation of new or the elimination of existing jobs are not called to the attention of the organization responsible for evaluating jobs. As a result inequities may creep into the salary structure and become increasingly apparent. As a precaution against such a situation supervisors should be provided with a standard form to request job evaluation service in connection with such occurrences. A further precaution may be provided by insisting that the job assignment of each employee be reviewed periodically by their supervisor.

14. That some avenue be provided for employee or union questions, complaints, and grievances.—It is inevitable that certain questions, complaints, or grievances will arise in connection with a job evaluation program. If the confidence of the employees or union, if involved in the evaluation program, is to be maintained, these must be accepted, discussed, and answered. The most general methods of handling such questions, complaints, or grievances is by direct employee contact with their supervisor or through grievance committee procedure.

15. That a practice of periodic audit or sample check of line administration of job values and salary rates be followed.—Quite frequently in spite of the best intentions it may be found that certain policies, practices, and procedures are not being administered in the manner in which they were intended. If such a situation is allowed to continue any length of time, serious harm may result in the effectiveness of the over-all salary administration program. As a means of avoiding this situation, an audit or sample check of various organizations should be made periodically to determine how well the intended policies, practices, and procedures are being adhered to. While the statistical value of such an audit is probably quite low, the psychological value is tremendous.

Conclusion.—The enumeration of these 15 requirements concludes the presentation on this subject. Three basic fundamentals of the problem of both salary and wage administration have been stressed.

1. The need for a general knowledge and appreciation of the over-all problem of salary administration.
2. The need for the establishment of the required policies, practices, and procedures and the training and education of supervisors in the administration of these.
3. The establishment of certain basic requirements which are necessary to successfully operate a salary program.

Salary and Incentive Plans

Determining Remuneration.—Many owners of enterprises, executives, managers, and even personnel directors inwardly take considerable unwarranted pride and outwardly assert egotistical authority in their determination of the amount of remuneration which should be paid to clerical and other office employees. Other persons, however, who have been close observers, have done careful research, and have been students for some time of the payment of wages or salaries to persons for their effort and accomplishments, are very humble and are considerably more hesitant to give an immediate answer when asked what a job is worth. Any reader of this section should also read the section on job evaluation and salary standardization because that information is basic when consideration is being given to incentive payments. A haphazard, briefly considered plan of paying people for production is dangerous. Anyone who is interested in and is going to have the responsibility for making recommendations on wages and salaries should devote considerable time to a study of the large amount of material which is printed and available.

Wages.—The amount to be paid for services should not be determined by the amount that is paid by another company for a position with the same title, by the amount requested by an applicant, by the amount which may be accepted by the new employee; and perhaps the new employee should not be paid the same amount as was paid to the last employee doing the work. By such criteria and many others which may be used, an incorrect answer may be secured. The person about to be assigned to the available work may be far more valuable or less valuable than persons who are already in the department or company, and hence it is quite important that the would-be honest and ethical employer proceed only when he has available data which will permit him to make a reasonably sound, scientific decision. The wage for every person should be basically a sound and just wage—the basic wage should be sufficient to permit the individual to live with respect while associating with other employees as well as when in his home community. Every employer should have, preferably in writing, a plan as a guide in the payment of wages or salaries. This plan should not only indicate the possible range

of salaries to be paid on each position, but should also take into consideration production, quality of work, length of service, recognition for ideas, and what steps to take when promotions are possible.

With these and many other steps being carefully taken, it will be found even then that wages do not in themselves stimulate the highest achievements of workers.

Incentives.—Incentives as referred to here mean extra pay in addition to the base salary for extra accomplishment over what might be reasonably expected of the worker when he is working at a normal and reasonable rate. The amount expected of the person when working at a normal rate, that is, his standard, should be definitely known. The excess production over standard should be as acceptable as, or of better quality than, his other work. The important consideration in the establishment of an incentive plan is the determination of a reasonably correct and fair standard rate of production and quality of work. Under some circumstances group incentives involving two or more employees working upon an operation which in itself is impossible of division is permissible.

It is generally accepted that the salary or rate structure should be determined independently of the incentive plan. Incentives, in order to be effective, fair, and just, should be payments made in addition to the regular salary and in no way should the salary administration plan be administered so that incentives may influence the amount of initial or subsequent salary.

While some managers with lots of personal drive and initiative may contend that employees should produce at the highest level for a regular salary, nevertheless, it has been proven many times in practice that an incentive plan which is related directly to production has a tendency, with most human beings, to encourage and actually result in extra production, and at the same time reduce unit costs.

MEASURING WORK ESSENTIAL.—Before incentives may be offered on a scientific basis, it is necessary that the work being performed be analyzed and a unit of measurement determined. While the purpose of determining work units may for the time being be primarily for the determination of standards and finally the offering of incentives for excess production over standard requirements; work measurement will be found to be valuable for making an over-all measurement of management, measuring the effectiveness of a department or the working efficiency of workers, as well as for purposes of control.

Units of measurement, in order that they may be fully useful, must be permanent or unchanging. They also must be of such a nature that the progress of different workers may be compared. The plan of measurement should be simple so that production may be easily calculated by the worker in order that he may judge his own progress. A careful study of the sub-

section on measuring performance, as well as more extensive treatises, is advisable for those persons who may be interested in this activity.

STANDARDIZATION.—Another essential feature in the setting up of incentives is standardizing the method of performing the work to be done based upon job analysis and time and motion study. The sequence is to make the motion study to determine the points where improvement may be made and in turn try out several plans for the selection of the best methods. Second in order is to make the detailed time study so that the elemental times for doing the work may be established for the best or approved method. The process of standardization also includes the writing down of the procedures as a fixed routine to be followed until conditions change or better methods are found. This description of the procedures becomes the standard method to be followed and is necessary if the amount of work required for a given salary is to be established accurately and fairly through a process of further observation and leveling as discussed elsewhere.

ADVANTAGES AND DISADVANTAGES OF WAGE INCENTIVES.—Wage incentives have been used with good results in large offices where there are many people working at the same kind of tasks, especially tasks which are largely repetitive. One of the difficulties in installing an incentive plan in a small office is that the cost of installation and upkeep may exceed the savings. To have a successful operation, it is essential that sufficient attention be given by someone with expert knowledge of time and motion study. In those cases where there are large numbers of employees, an important advantage to be obtained by a good incentive system is in reducing the costs of many operations. At the same time, the total compensation of employees should increase. Space occupied by departments may be decreased, and less equipment needed.

When using wage incentives, management must be very careful to see that the base or guaranteed salary is not influenced in any way by the existence of incentive payments. Management must also recognize that wage incentives do not take the place of, and cannot be substituted for, proper supervision. Wage incentive plans are a tool for supervisors to use in increasing the effectiveness of their departmental management. Management must also see that any wage incentive plan which is installed is also maintained by careful observation and frequent restudies of the work being done. If it is not possible to have trained engineers or analysts available to maintain an incentive system, it is questionable whether such a plan should be installed.

Requirements of a Good Incentive Plan.—When a management is considering the installation of an incentive plan, the plan should be checked to see that it fulfills several requirements, some of which are as follows:

1. The employee should be rewarded by receiving greater pay for increased production.
2. The total cost of operation and unit costs should be reduced.
3. If a guaranteed salary is offered, it should be a fair one and comparable to salaries paid for similar work in the community.
4. The plan should be easily understood so that employees may readily calculate their own earnings.
5. The incentive or bonus pay should be large enough to really provide an incentive for extra production.
6. The plan should be available to each employee in writing so that the policies and methods may be understood and recognized as being fair.
7. The plan should demand the maintenance of quality.
8. The procedures to be followed must be standardized.
9. The incentive payment rate for excess production over standard and the standard itself must not be changed because of excess earnings, but only when there has been a definite change found necessary in method, equipment, materials, and so forth which will obviously require a definite, measurable change in standards or rates of incentive payments.

Systems Suitable for Use.—The reader who is interested in having an incentive system installed in his office should become fairly familiar with the most common wage incentive plans which have been used, such as the Gantt Task and Bonus Plan, the Halsey Premium Plan, the Emerson Plan, and the point or unit system, such as the Bedaux, Haynes Manitt, and the Dyer systems.

In the setting up of a system, for example the point or unit system, the procedure is to determine the fair amount of work which an operator may perform in one minute while working at a fair rate of speed. Sixty points or units are to be considered as the standard amount of work to be turned out in one hour. When the operator exceeds the standard of sixty points or units per hour, the excess points over sixty are paid for at some predetermined percentage of unit cost, varying from 50% to 100% of the unit cost when just 60 points per hour are produced. The tendency is to pay a bonus of 100% of unit cost for all excess production, in which case the company receives as its reward a reduced cost due to the increase of production from the original production rate up to standard, which will in most cases be sufficiently profitable to justify the plan, especially where a large number of employees are placed on the plan.

In some cases, piecework is still found satisfactory, but when a piecework plan is used, it is advisable (in some states required) to have a guaranteed salary or minimum rate which will give the employee a feeling of security.

Development of a Plan.—It is strongly recommended that the development of an incentive plan be delegated to an employee or industrial engineer who clearly understands and has been well trained in all steps associated with production and incentive work. It may be necessary to employ professional persons for this task. Whoever is selected to do the job should thoroughly understand the procedure and have the ability to make job analyses, time and motion studies, and job evaluations, and be able to write standard procedures, make community salary surveys, and carry on other activities which are basic to insure the development of a satisfactory and workable salary and incentive system.

INSTALLATION.—Before a plan is drawn up for the installation of incentives in an office, the office manager or other responsible persons should have made a thorough study of the subject and all the elements and principles which may be involved. He should be certain that the conditions in his office are favorable to the installation and permanent operation of an incentive system. Some of the important steps to be taken are as follows:

1. The management personnel who will be concerned with the operation of the plan should be carefully educated and given such background information that they clearly understand the problems, methods, and especially their own responsibility and part that they shall have to play in the installation and continued operation of the plan. They should not only understand but they should be in favor of, and even enthusiastic about, the plan and its possibilities.

2. It should be ascertained that the employees will be interested in and cooperate in an incentive plan. This is particularly important when there is an organization of employees and contracts which must be considered. In presenting the matter to the employees concerned, every effort should be made to give a fair and true picture of the benefits they are to receive.

3. In order that everyone may understand the steps that are to be taken, a report should be prepared to serve as a guide in preparing for and installing the incentive plan.

4. After making a careful and detailed analysis of all the work which may be standardized and placed on incentives, the most desirable incentive system should be selected. It may be that conditions will warrant a variation or combination of systems to fit the local situation. In the determination of the plan, consideration should be given to the benefits to be derived in behalf of the company, and more important, the probable earnings of the employees should be determined to see if they will be adequate to appeal sufficiently and stimulate the increased effort which is necessary for increased production.

5. The methods being followed in each operation to be placed on incentive should be analyzed, studied, and improved and then put in writing.

6. When the best methods and procedures have been determined and have been written, the written descriptions then are to be established as the *standard* methods and procedures.

7. The present way of doing work then should be changed to conform to the standard methods and procedures. For a considerable time, perhaps several weeks, very close supervision should be given to see that all employees follow the standard methods and that the habits of following the standards have been clearly established.

8. After being sure that the standard methods and procedures are workable and the best possible, then time and motion study data and production records should be accumulated as a basis for determining a fair day's work for each employee or group of employees. Work units, of course, will be established, and complete production records will be kept.

9. When sufficient progress has been made on the part of the investigator to determine that his measurements are satisfactory, the publishing of production records in the department may be started. This alone will normally be found to stimulate increased production for a considerable time. The supervisor has a chance to help by recognizing good work, correcting errors, and judiciously encouraging his associates.

10. Along with these studies which have been going on, the existing salary or wage rates should have been investigated and a basic job evaluation made in the departments where incentives are to be installed. Along with this, a study of wages paid in the community for similar activities should be made. Following this, it may perhaps be advisable to make some adjustments in salary rates, in order to have a fair and equitable salary system upon which to base the incentive plan about to be offered.

11. After all steps which have been taken have been tested and it is certain that the work is being done as it should be, the production standards may be established and the rate of incentives for excess production over standard determined.

12. The announcement of the plan to the employees should then be made so that they may all clearly understand what is expected. Proof should be offered them that the plan is fair and that the extra earnings will be sufficient and attractive.

13. Along with this, responsibility for all phases of operation and supervision should be established so that there will be no question about what part the various management representatives are to have in the plan.

14. A system of simple but essential reports should be developed to show individual production in points, percentage of standard, amount of bonus earned, and other individual and group records. These data will serve as a basis for further study. A portion of these data should be made available to the employees, and other portions should be made available to the supervisors and general management.

15. Those who have made the studies and installed the system should periodically reexamine the procedures, methods, and performance to see that the actual operations are not departing from the plan. If so, changes should be made to bring the system up to date in every respect. In the early stages semi-annual or annual reports of evaluation are important to keep management informed and sold on the effectiveness of the plan which is being used.

RESULTS EXPECTED.—In addition to the reduction of costs per unit of work performed and an increase in the income for the employees, an improved morale may be expected for both employees and supervision. Supervisors and employees should be found working closely together and co-operating better in connection with the common tasks which they have.

In the development of incentive plans, it will be noticed that the standardizing and measuring of work alone will cause a noticeable increase in production over a considerable period, even though no financial incentive is offered. The percentage of increase will vary, depending upon the operation being performed. The expected variation may well be as much as 100%. Then after a plateau of production has been reached, it will be found that another increase will occur when the financial incentive is offered, perhaps at least another 20% or 30%.

Other Incentives.—Direct financial incentives which have a close relation to the production of the person are most effective in encouraging workers to concentrate on maintaining a record of high production. There are other types of incentive which may be used also. The company management may have reasons for using one or more of these without using direct financial incentives while some may make use of several plans in addition to direct financial incentives. Some companies have used a profit-sharing plan which is based upon the over-all profits of the company. Some pay the profit bonus monthly, others annually.

A good suggestion plan may be considered a good incentive plan to stimulate ideas. An indirect result may be increased production and reduced costs.

A stock-ownership plan, wherein most employees are given an opportunity to own stock in the company, is thought to stimulate effort.

Salary bonuses may be offered which involve paying an annual bonus based upon a combination of company profit and the amount of salary paid each person.

NON-FINANCIAL INCENTIVES.—It is generally conceded that employees may be happy, interested in their work, and good producers when the management is alert, progressive, and uses such non-financial incentives as periodic ratings, frequent interviews, good housekeeping, proper selection and arrangement of equipment, personal attention to employees' interests

(birthdays, family problems, etc.), praise for good work, proper placement, promotions within the company, public recognition for good work, and the giving of special privileges such as extra time off from work.

The above list represents only a few of the many non-financial incentives that may be used. Not all of them may be used in any one situation but one or more of them usually can be applied with advantage if applied to the right person or group and under appropriate circumstances. It should be emphasized that all workers will not react equally well to a particular non-financial incentive.

When a management uses both financial incentives and non-financial incentives wisely with its employees—both individual workers and the supervisors—it should have a high morale among its employees and a high-producing group which should bring low costs and in turn a satisfactory profit. Management is more and more being challenged to use all the available tools to get the results which may be expected of it.

Merit Rating

Plans for Merit Rating.—Informal merit rating began when man first judged man, but formal merit rating is only about 30 years old. It started, as did many of the test programs, during the first World War. It has taken many forms, been actively in use, and discussed pro and con ever since.

A recent study made by the Office Management Association of Chicago showed that at least 75% of formal merit ratings are for wage determination or for ascertaining who are prospects for promotion—promotions in these instances generally meaning salary increases. Formally or informally, merit rating is always present whenever there is a range of salaries paid for a given job, and when progression in that range is not based on some automatic factor, or some objectively measurable quality. Therefore, for most clerical jobs it is not a decision of whether or not merit ratings will be used, but whether a standardized system will be used. The reasons for formal ratings usually center around:

1. Uniformity of treatment throughout an organization.
2. Increasing the objective or analytical viewpoint of the rater. This is generally thought of in terms of reducing the "halo" effect that is the tendency of a rater to think in general terms of the ratee and, without analyzing good and bad points, judge him to be equal on all qualities.
3. Greater assurance to the ratee that he is not being overlooked.

The second most general use of systematized merit ratings is for counseling of employees. There would seem to be no logical reason why the same merit rating could not be used for both wage determination and counseling;

however, in practice it very seldom is. Perhaps when salary is involved, a tenseness arises in the relationship which makes the rating less easily discussed.

Anyone adopting a formal system must decide six items:

1. What type of rating is to be used.
2. What items are to be rated.
3. Who is to do the rating.
4. When ratings are to be made.
5. How they are to be scored and interpreted.
6. Final setup of ratings.

Types of Rating.—There are four principal types of rating:

1. Man-to-man comparison
2. Graphic rating
3. Numerical or letter rating
4. Check list method

MAN-TO-MAN COMPARISON.—In this type the rater, choosing the item on which he wants to rate, for example, "accuracy," and thinking of all persons whose accuracy he has ever been able to judge, selects the man who in his opinion was the most accurate. With the same viewpoint, he selects the man who was least accurate. They form the limits of the scale. He then fills in with as many other names as he desires to have grades. He makes up a scale of this kind for each of the traits on which he wishes to rate, and then determines for each ratee the person on the scale whom he most nearly resembles in the trait being considered.

Such a type of rating has the advantage of giving each person a well-known scale for measurement. It has the disadvantage that it is clumsy in building up, that the standards of one rater may be different from those of another, and that in comparison it is very difficult for the rater not to compare individuals in their over-all appearance and personality to the person on the list rather than keeping strictly in mind the trait being rated.

In a modification of this system, the rater, having individual cards for all ratees, sorts them into piles on their relative possession of the trait being rated. With such a scheme there must be some definite instructions as to the number to be placed in each pile. This may be the same number in each group or based on the ordinary distribution of human traits, the percentages may be 10 in the highest, 20 in the next, 40 in the next, and 20 and 10 in the two following. The rater usually experiences some difficulty in complying with either of these distributions. It has the advantage that when he does comply, no future adjustment of his ratings is necessary by a central department. A special modification of this system has been suggested by T. A.

Ryan.⁶ In this method each rater considering all men on a single job or group of similar related jobs lists:

1. All outstanding men
2. All poor workers
3. All average workers
4. All trainees and inexperienced workers

Having done this on an over-all basis, he then does it on special traits, such as dependability. Ryan does not indicate how the two lists can be combined. This would, however, not seem difficult. The writer has not as yet found any instances where this method has been used in industry.

GRAPHIC RATING PLANS.—Probably the most popular rating schemes of the last 25 years have been graphic. These are of two distinct types; the first has a separate sheet for each individual and all traits to be rated are listed on this sheet, as in Figure 35.

GRAPHIC RATING PLAN			
Name.....		Date.....	
Dept.....		Section.....	
Position.....		Name of Rater.....	
		Position.....	
QUALITIES		REPORT	
I. APPEARANCE. Consider neatness of person and dress.			
Neat	Ordinary	Passable	Slovenly
II. ABILITY TO LEARN. Consider ease of learning new methods.			
Needs repeated instruction		Catches on easily	Very quick

Figure 35. Graphic Rating Plan (Type I)

Eight items appear on this sheet. Note that here the high ratings of the two traits appear at different ends. This is a device sometimes used to insure a careful reading of the blank.

The second has a separate sheet for each trait. The names of all ratees appear on this sheet, as in Figure 36.

Persons favoring the latter type feel that since rating on any quality is primarily a comparison within a group, having in mind one quality and all

⁶ T. A. Ryan, "Merit Rating Criticized," *Personnel Journal*, Vol. 24, No. 1, Personnel Research Federation, New York, May 1945, pp. 6-15.

GRAPHIC RATING PLAN							RATER	
KNOWLEDGE OF BUSINESS:—CONSIDER THE KNOWLEDGE WHICH INDIVIDUAL HAS OF THE WORK INVOLVED IN HIS JOB IN DIVISION								
DIVISION	Name	Complete Knowledge	Very Good Knowledge	Practical Working Knowledge	Fair Knowledge	Knows Ordinary Details	Knows Simpler Work	Just Learning
There are similar sheets covering different traits.								

Figure 36. Graphic Rating Plan (Type II)

Consider this employee's capacity for growth in the Company? Is the work he is now doing the limit of his capabilities, or could he do work of increased scope and difficulty? Is he just about equal to the demands of his present position, or has he capacity for increased responsibility? Age, health, mental ability, personality, character and record for accomplishments are all to be taken into account in making this rating.

Capacity for future growth

Has great possibilities	Should advance rapidly	Shows promise	Has approximately reached his limit	Decreasing in efficiency
10	9	8	7	6
				5

Is this employee now ready for increased responsibility?.....

If so, what is your recommendation with respect to promotion?.....

Figure 37. Rating Sheet Asking Supervisor's Plan of Action on Employee

of the ratees gives an easier technique and also tends to reduce the "halo" effect. The persons who use the merit rating for counseling usually favor the first method since then the blank can be shown directly to the employee.

Occasionally a rating sheet, after calling for the estimate of a given quality on an individual, asks the rater what he is prepared to do about it. This type of question probably adds to the carefulness of the rating and emphasizes the supervisor's responsibility for taking action. (See Figure 37.)

In developing a graphic system, not only the qualities to be rated but the gradation of those qualities must be determined. This, as a rule, is done by words or phrases. A study of a large number of blanks shows the great difficulty which has been experienced is getting a consistent and logical gradation of any given quality. Many poor sequences can be quoted; for example, under "Quantity of work":

1. Slow worker
2. Works in spurts
3. Consistent volume
4. Above average production
5. Unusually fast worker

It is perfectly evident that these descriptions are inconsistent since (2) and (3) refer to uniformity of production, (1) and (5) to speed of operation, and (4) to actual production. Because of this difficulty in working out satisfactory subheadings, many blanks use for all traits grades such as: "Excellent," "above average," "average," "below average," and "poor."

In some instances this has been reduced even further to a straight line with no designations or only numerical ones, the rater being allowed to use his own interpretation of the points.

NUMERICAL OR LETTER RATING.—This same shortening continuing has led to the use of numbers or letters in place of checks on the line. When this point is reached we find blanks, such as Figure 38, where both the name and all qualities appear on a single sheet.

Not infrequently we also have straight numerical ratings of a type which we have become accustomed to in schools, for example, Figure 39, where a separate sheet is used for each ratee and all qualities are included.

If any number of factors are used, such a blank has the disadvantage of becoming very long. It has been shortened by giving general definitions in the directions of the meaning of the various percentages and having only blocks to check.

CHECK LIST METHOD OF RATING.—In 1931, J. B. Probst,⁷ as a result of work that he was doing for the civil service, developed a check list system of rating.

NUMERICAL OR LETTER RATING PLAN							
Division.....					Date.....		
Rater.....					dm-606		
NAME	Personality	Education for Job	Capacity and Adaptability	Cooperativeness	Depend-ability	Effectiveness	For use of Employment Division

Figure 38. Numerical or Letter Rating Plan (Type I)

Typical directions for above blank are: "Enter after each name for each quality one of the following: E—Excellent, AA—Above Average, A—Average, BA—Below Average, P—Poor." On the other hand, percentages based on a hundred as perfect may be suggested, or numbers based on the weight given each item.

NUMERICAL OR LETTER RATING PLAN						
FACTOR	DEFINITION	MEASURE	%	CHECK	WEIGHT	POINTS
Quantity of work turned out	Consider the amount of work accomplished	Unusually high output.....	100%			
		Very good output..	90			
		Fairly good output.	75			
		Slightly limited output.....	65			
		Limited output....	50			
		Little output.....	35			

Figure 39. Numerical or Letter Rating Plan (Type II)

This system has gained some popularity and, according to a bulletin from Probst, has become international. In brief, it is a list of adjectives or expressions which are commonly used by a supervisor in discussing his force. The rater checks the items which he feels apply to the given employee. The

⁷ J. B. Probst, "Service Ratings," *Technical Bulletin*, No. 4, Bureau of Public Personnel, Administration and Civil Service Assembly of the United States and Canada, Chicago, Illinois, 1931. Also J. B. Probst, *Measuring and Rating Employee Value*, The Ronald Press Company, New York, 1946.

blank (Figure 40) is then scored from a predetermined weight of each item. The Probst system calls for three raters on each person. As the system has been used, there have been often only one or two raters. Persons using the system have sometimes built up a list from expressions furnished by their supervisors, thus having the supervisor participate in the construction of the system. If the expressions are well chosen, it forms a somewhat natural way of expression and it facilitates the discussion between the supervisor and the employee if counseling is the objective of the rating.

Check Columns			
1	2	3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lazy
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slow moving
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Quick and active
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Too old for the work
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Minor physical defects
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Serious physical defects
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Indifferent; not interested
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Talks too much
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Too blunt or outspoken
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Too much self-importance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Good team worker
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not a good team worker
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Resents criticism or suggestions
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Antagonizes when dealing with others
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Might often be more considerate

Figure 40. Check List Rating Plan—Type 1

One objection to the system is that the number of items checked is a determining factor in the final score, and that it is possible to have an excellent person on whom relatively few items can be checked. An attempt to correct this has been made by taking the average value of the rating. There is, however, no report of this method's having met with success.

A second objection is that raters often feel there should be some modification of the statements. They hesitate to say, for example, that a man is lazy, but would be willing to say that he is either lazy at times or less energetic than some other ratees. To meet this objection there have been developed systems of rating of the check list type where one is required to indicate various degrees of the possession of any quality. This is illustrated in Figure 41.

In this type of rating a person is usually asked to rate on all qualities, but in some instances a column is provided which says, "Unable to judge." This probably gives greater accuracy since it eliminates a considerable amount of guessing.

Recently there has developed a tendency to ask the rater to give actual instances on which he bases his rating on each trait. This adds considerably

to the work of rating since it definitely means keeping records throughout the rating period, but has proved well worth the effort where it has been used. It may be used with any of the described types but requires that a sufficient space be left for fairly extended notes. These notes have been given the rather telling name of "behaviorgrams."

It must be remembered in selecting any form of merit rating that all ratings are subjective comparisons of individuals on qualities which cannot be measured but which we hope can be compared. They, therefore, are only

CHECK LIST RATING PLAN

These statements deal with the way the person being rated does his or her job. The person you are rating may do these things *always, usually, sometimes, or never*.

Read each statement carefully and then circle the letter that is true in each case.

A = Always

U = Usually

S = Sometimes

N = Never

If you are uncertain how to mark some statements, omit them.

- | | | | | |
|---|---|---|---|--|
| A | U | S | N | 1. Produces high quality work with few mistakes. |
| A | U | S | N | 2. Does his share of the work. |
| A | U | S | N | 3. Works rapidly enough. |
| A | U | S | N | 4. Learns quickly how to handle new jobs. |
| A | U | S | N | 5. Works well with only occasional supervision. |
| A | U | S | N | 6. Follows instructions correctly. |
| A | U | S | N | 7. Observes all safety rules regarding his job. |
| A | U | S | N | 8. Makes special effort to keep plant clean. |
| A | U | S | N | 9. Thinks of ways to improve his work. |
| A | U | S | N | 10. Gets along well with others. |
| A | U | S | N | 11. Shows good attitude toward supervision and plant policies. |
| A | U | S | N | 12. Reacts in the right way to criticism and correction. |
| A | U | S | N | 13. Shows enthusiasm for his job. |
| A | U | S | N | 14. Personal appearance is satisfactory. |

From thirty to fifty items may appear on this type of blank.

Figure 41. Check List Rating Plan (Type II)

as good as the judgment and the honesty of the rater. Assuming absolute honesty, that form is the best in which the particular rater has the greatest faith as an aid in arriving at the most accurate evaluations.

Any one of the described types of ratings will give satisfactory results if properly handled, and all will fail without the cooperation of the raters. Therefore, in choosing the form to be used, probably the chief consideration is which can be most successfully sold to your supervisory group. For determining this, it has often been helpful to ask a selected number to try out several forms and become the advanced agents for the one in which they

have the most faith. Eventually it is well to offer only one plan, at least at a given rating period, to the entire group. It is something of a comfort to one puzzled by the many types of forms that have been suggested and in some instances actively promoted, that experiments have shown that given the same rater and ratees and careful work, while there is by no means perfect correlation between the results, it is high.

Items on Which to Rate.—In general, the choice of items on which to rate must be (1) traits or work habits of the individual which affect performance of the job, (2) those having a spread within the group, (3) those on which there is no objective measure. For example, if appearance has no effect on the efficiency of the individual, one should not rate on it. Or, if an entire division is cooperating 100%, it is of no use to rate on cooperation in that particular section. Or, if there is an actual record of errors, the record itself should be used and accuracy eliminated from the rating scale.

The smallest number of items which the writer has seen on any blank is two (Figure 42).

RATING PLAN					
Check under both Efficiency and Personality. Not more than 25% should fall in Grade III, and not less than 25% in Grade I.					
EFFICIENCY (Consider Speed, Accuracy, Quality, etc.)			PERSONALITY (Consider Cooperation, Fitness, Adaptability, etc.)		
GRADE I	GRADE II	GRADE III	GRADE I	GRADE II	GRADE III

Figure 42. Rating Plan Based on Only Two Items

The largest number which appears on a commonly used blank, excluding, of course, the check list method of rating, is eighteen.⁸

This difference in number of items to be rated represents a difference in the philosophy of rating. In the first instance the rater's attitude is that one needs to know only two items about the employee: (1) his ability, and (2) his personality, and that the rater can make a satisfactory over-all judgment. It would seem to be somewhat justified by the high intercorrelation of factors

⁸ Bedaux Rating Plan, which has 60 items, has been excluded because its principal use is self-rating rather than merit rating.

in most rating scales.⁹ Such a rating, however, defeats in a large measure one purpose of rating; that is, to make a supervisor more analytical, and if purpose of rating is counseling, it will result in the lack of ability to correct weakness of an employee in one trait which is handicapping the individual's progress.

The many-item type carries to an extreme the idea that human nature is so complex that one may have almost any combination of separate traits, and therefore, to get a picture, as many traits as possible must be introduced. For example, they argue that one may have a very neat appearance and a very poor manner. Therefore, these must be separated, though both would be important in a job requiring public contact. In this form of rating the great difficulty is the combining of the factors into a whole. How much should each quality be weighted and should any particularly good or bad combination of qualities receive extra weight?

A middle ground on the number of items is the most popular and probably the wisest. Items which appear on most clerical rating blanks, though stated in many different ways, are: Quality of work, quantity of work, knowledge of work, interest in work, dependability, personality, cooperativeness. Practically every blank has some item which does not appear on other blanks but which either applies particularly to this group or is a pet item of the individual drawing up the blank.¹⁰

There is a wide difference in the detail or definition written on different blanks. Some blanks try to give a very definite pattern of thinking for the rater. Other blanks use only a general term and leave the definition to the rater. In general, where a combination of various raters must be made, the extended definition is used but where each individual rater's score may be interpreted as a separate unit, the definitions are left to the individual.

The choice of how to express the items is fundamentally one of personal preference. The fact that different words have different meanings for different individuals has been illustrated many times. For example, given 142 adjectives which were supposed to cover fairly well all of those in the English language referring to personality, a group accustomed to rating was asked to indicate whether, if the person possessed that quality, it would be good, natural, or bad, and there was an 85% agreement in only 80 adjectives. Besides the difference in interpretation of words one also meets very definite objections to certain expressions. For example, a supervisor may be unwilling to rate on speed, but perfectly willing to rate on volume of work. This difference in interpretation and choice of items has led to the form of one company which allows each supervisor to choose the qualities on which he

⁹ Joseph Tiffin, *Industrial Psychology*, Prentice-Hall, Inc., New York, 1942, p. 242.

¹⁰ A detailed study is being made at present by the Clerical Salary Study Committee of the Life Office Management Association to determine items most generally favored by supervisors.

will rate and the weight of those qualities to be used in the final score, as illustrated in Figure 43.

Such a form probably should not be used the first time a group is asked to rate. After they have become accustomed to rating it often works very successfully. It is the rater's breakdown of the job content and thus eliminates all objections of the raters to the items to be rated, the wording of the items, and the weight to be given them.

Where a point evaluation system is used for job classification, some of the same items are often used for rating as were used to evaluate the job and the weights given them correspond to their weight in the job analysis. This

CLERICAL RATING FORM													
Division		Date		Ratings by									
Name	Qualification												Do Not Use This Column
	Max. Score												

Figure 43. Clerical Rating Form

has been used as one of the arguments for a job point evaluation system. However, relatively few of the points for analyzing the job are good rating items. For example, in the national metal trades' point evaluation system, only three out of nine job essentials are suitable items on which to rate the individual.

If one has reason to believe that the "halo" effect is distorting ratings to an undue degree, it is sometimes advisable to put in an item which will have no reason for correlating with the others; for example, voice. If then, this shows a high relationship with the total score, a full discussion should be had with the rater.

Person Doing the Rating.—Ratings must be done by persons who know the individual and his efficiency on the job. In most cases they are done by the ratee's immediate supervisor and if possible by one or more additional

supervisors. The ratings may be done independently or by the immediate supervisor and checked and assembled by the higher supervisor. Recently, there have been several studies made of the employees rating each other and also rating the supervisor. If these can be carried out without feelings of resentment arising, which has seemed to be accomplished, the results form a definite check and an addition to the rating of the supervisor. In one instance the mutual ratings are made first, assembled by a central department, and the combined ratings of each individual reported to the supervisor who then uses them as an aid in making his ratings.

In cases where the ratings are used for counseling, the individual is sometimes asked to rate himself on the same sheet that the supervisor has used. Any serious disagreement can then be discussed with him by a neutral party.

When Ratings Should Be Made.—Ratings should be made as often as there is the probability of a change in the rank order of the employees of a division. A year is the longest time that should elapse between ratings. Three months is probably the oftenest that any supervisor should be asked to devote the time to rating. If the turnover is average, six months probably is often enough or with low turnover, once a year. It should not be done so often that it becomes simply routine. A well-considered rating once a year is much better than careless ones at more frequent intervals. Any rater should rate his entire group at one time. The ratings of an individual apart from the group for the purpose of a salary increase should not be considered.

Scoring of Blanks and Interpretation of Results.—In studying the ratings of any supervisor to determine whether or not they are satisfactory, the office manager or personnel director should keep in mind: (1) Do the items on which the rating has been done measure the efficiency of the individual? This has probably been predetermined. (2) Is there a satisfactory spread in each trait? That is, the majority of individuals should be given scores which vary by not less than 30%, and show no great concentration in any given rating or range of ratings. For example, if the rating of 20 persons on a basis of 10 ran 9 tens, 8 nines, 2 eights, and 1 seven, although the range from 7 to 10 is 30%, the distribution would not be acceptable. On the other hand, 4-10, 5-9, 6-8, and 5-7 would be acceptable. Also, if from 7 down they ran 3-7, 1-6, and 1-5, the range and grouping would be good. An even greater range is desirable. (3) Are individuals rated differently on different traits? There is objective evidence of a positive correlation between certain desirable traits. For example, measured production has shown that by and large the faster workers are also the more accurate. But there is also evidence to indicate that most persons have strong and weak points, and that any rating which does not show these, indicates that the rater has not analytically studied his ratees. Probably this can be better determined by an inspection of the blanks and by a frank discussion with

the rater than by an arbitrary ceiling put on the acceptable correlation between traits.

If ratings are to be used for counseling only, some form of profile without an over-all rating may give the results desired. If, however, the ratings are to be used for wage determination or promotability, an over-all score must be calculated. The scoring of the blank is generally the function of a centralized personnel department. Usually there is a predetermined weight assigned to each one of the items and the calculating of a total score is a mechanical operation—not, however, at least without due caution as simple as adding all of the individual scores on separate traits together; for it can be shown that, if the range of ratings on different traits varies widely, simple addition of ratings distorts the scores. When this occurs, the statistical method given in the reference should be used.¹¹

After the score is obtained, if the rater's unit may be considered by itself, the simplest way is to list the ratings in order and divide them into a given number of units. The most popular is five and the most popular distribution is to place the same number in each division. However, in some instances the percentages should follow the regular distribution curve and be 10 in the highest, 20 in the next, 40, 20, 10 in the three following.

An objection to this system has been made that in a decreasing force where the poorest are eliminated, the others, automatically being shoved down, are penalized. It is a valid criticism, but the writer has found no better method reported. Perhaps the best suggestion is that it should be used with discretion.

When the rating of different individuals must be thrown together, the usual technique is to proceed as if each was to be used by itself, determining in this way whether the individual is a high or low rater and then making such adjustments on the ratings as are necessary to satisfactorily combine them. For example, if one rater placed everyone between 90 and 100 and another spread his ratings between 0 and 100, it would be obviously unfair to put all of the first man's ratings with the highest 10% of the second rater's group.

All of this assumes that the group rated are equal in the various traits or at least in the over-all rating. While in many instances this may not be true, it would seem to be the only practical solution. Any office manager or personnel director who tried to adjust the ratings of his supervisors according to his own estimate of the efficiency of various departments not only would be most unpopular but also would probably run into insurmountable obstacles and interminable discussions.

¹¹ Joseph Tiffin and Wayne Musser, "Weighting Merit Rating Items," *Journal of Applied Psychology*, Vol. XXVI, No. 5, Ohio University, Athens, Ohio, Oct. 1942, pp. 575-583; or Joseph Tiffin, *Industrial Psychology*, Prentice-Hall, Inc., New York, 1942, pp. 245-247.

Final Set-Up of Ratings.—The job analysis and evaluation determine the minimum and maximum salary which should be paid for that particular job. The rating of the individual determines his position between this minimum and maximum salary. Probably the easiest way of handling it is to set up as many units between the minimum and maximum salary as one has rating units, and then evaluate each one of these units in actual salaries. For example, if one had a job whose minimum was \$1,500 and whose maximum was \$1,900 and had five rating divisions, one would have \$1,500 for the lowest rating, \$1,600 for the second, \$1,700 for the third, \$1,800 for the fourth, and \$1,900 for the highest rating. This figure, usually called the "rated salary," can be calculated for each person and a comparison of that, together with the salary which the person is receiving, forms an aid to the determination of increases to be granted.

If their purpose is counseling, some form of definite report of the results of the counseling should be set up. Nothing is so deadly to general morale as any elaborate system which does not follow through to its logical conclusion. Therefore, ratings should be made only when there is definite use of the final result.

General Evaluation.—From a technical viewpoint, all merit ratings fall well below desirable standards since they do not meet the ordinary criterion set up for scientific work. Their reliability can be found from correlations between ratings made, short intervals apart, by the same rater on the same rates; but from their very nature—comparisons of qualities on which we have no accurate measure—their validity cannot be determined. In some instances a comparison of judgments by several raters has been considered a test of validity, but the fact that two, or even many, people rate a man high on any trait means only that he gives the appearance of having that trait, and does not indicate that he actually has it. The universally trusted bank clerk who goes wrong is an outstanding example. Increasing the number of raters gives additional reliability; it does not prove validity.

Although merit ratings, even at their very best, are not a proven, accurate measurement tool, the practical man has learned long ago that if any tool increases the efficiency of his operation by 50%, 30%, or even 10%, that tool is well worth using. The old muzzle loading musket was far from a perfect firearm, but its increased efficiency over the bow and arrow made it a practical tool for our pioneering ancestors. So, while we should be on the alert to develop better rating systems than are now in existence, we may well use the present system, since formal ratings do produce better results than the informal guessing systems, the place of which they have taken.

CHAPTER 9

EMPLOYEE RELATIONS AND PUBLIC RELATIONS

Grievances

Nature and Importance of Grievances.—A grievance is any complaint, dispute, or criticism of an employee based on a persistent feeling of suffering, oppression, injury, distress, or annoyance. The element of duration is essential to distinguish the grievance from the ordinary fleeting "gripe" which the individual is likely to register and then forget in maintaining some measure of emotional equilibrium as he goes about his daily work. The grievance represents a negative employee reaction. It is charged with a varying degree of emotion. It is in reality symptomatic of employee maladjustment and as such it should receive careful consideration.

The maladjusted individual cannot possibly be a responsive employee. He loses in productivity; he refuses to cooperate; his growth and maturity cease. The emotional block that arises from a sense of being wronged, from nursing a grievance that is improperly adjusted or remains unadjusted, will inevitably cause loss of morale in the aggrieved employee and ultimately in the group, if the latter is subjected to constant complaining and discussion of his improper treatment. The feeling of injustice, estrangement, or indifference that inescapably creeps into the consciousness of the aggrieved employee is a constant threat to his own emotional stability and to the morale of the group. An unadjusted grievance is a danger spot to the individual and to the group. It is a senseless waste of good employment practice to select and train an employee with utmost care, follow him up for general job adjustment, and then leave the question of his continuing adjustment to chance and circumstance. The problems presented by the grievance fall in this area of continuing adjustment on the job.

In emphasizing the importance of a grievance as a "tremendous trifle" it is not intended to overstress its importance. Quite obviously this is only one small sector of the general problem of keeping employees properly adjusted to their jobs, working environment, and group relations. Hence its very smallness tempts some executives to conclude that it is of only incidental importance. It is rather typical, among office executives particularly, to dismiss the grievance as of small significance either on the grounds that no grievances exist among their office employees or that all grievances are ably handled by the supervisors. The "open-door" policy is frequently

stressed as an entirely adequate method of disposing of grievances. In reality it has three major weaknesses: (1) only the boldest, most self-confident, or most emotionally disturbed employees will avail themselves of it; (2) its use depends heavily on the reputation and manner of the supervisor; and (3) it is too formless, too informal, too haphazard to create in the mind of the employee the deep and abiding conviction that he is guaranteed fair dealing and can invariably make himself heard without fear of reprisal when he thinks that fair dealing is threatened.

Inasmuch as the grievance is properly considered symptomatic of the maladjustment of an employee, no distinction between types of grievances dare be entertained in developing a sound approach to this problem. The imaginary grievance is just as significant as the "real" grievance. In fact, it is likely to be more difficult to adjust and is usually surcharged with a higher degree of emotionalism than the so-called real grievance. It is, too, improper to distinguish between valid and invalid grievances. The latter suggests a legalistic approach that is completely incompatible with the proper understanding of a grievance. It intimates that only those grievances may be recognized which arise because of some breach of office rules and regulations or of a written union contract. Such legalistic basis also militates against the sound adjustment of the grievance, for the basis of adjustment will inevitably be narrowed to what is believed to be a proper application of the rules and regulations or of the terms of the union agreement. This process, of course, will lead to a settlement but not to an adjustment which, properly conceived, must necessarily involve all the psychological and social implications of the employee's experiences whether they fall within the organization or are external to the office environment. The sound approach to employee readjustment even in this seemingly small world of personal grievances is clinical rather than legalistic.

Areas in Which Grievances Originate.—Grievances may arise from a wide variety of sources. It is, therefore, well to keep clearly in mind the general points of the office compass in which frictions that will ultimately result in grievances may be generated.

Only by understanding completely the vast variety of situations in which maladjustments may occur can a program of meeting grievances be properly initiated.

Because union agreements place great emphasis on methods of adjusting grievances, it is sometimes felt that formal recognition of the importance of the grievance is peculiarly associated with unionism. This is a mistaken attitude. A grievance requires adjustment whether or not a union is present as the representative of the employee. Its adjustment is necessary to develop a team of responsive employees.

Grievances may arise because of personal difficulties in the following areas:

1. Economic and status factors
 - (a) Salaries
 - (b) Transfer
 - (c) Promotion
 - (d) Work rotation
 - (e) Overtime
2. Working conditions
 - (a) Hours of work
 - (b) Physical environment
 - (c) Personal facilities
 - (d) Vacations
 - (e) Personal privileges
3. Rules and regulations—contract provisions
 - (a) Disciplinary action
 - (b) Discharge
 - (c) Interpretation and application
4. Relations with supervisor
 - (a) Work assignment
 - (b) General relations
5. Relations with co-workers

Programming the Adjustment of Grievances.—If grievances are to be adjusted properly, it is necessary for the management of the company to develop a definite and full program toward that end. The problem will not respond to piecemeal treatment. The essential features of such a program consist of the following elements:

1. The support of top office management.
2. Adoption of adequate grievance-handling machinery.
3. Development of a technique of adjusting grievances.

Support of Management.—The top office management must give its full support to any program of adjusting grievances especially with respect to the following points:

1. Recognition of the validity of *all* grievances.
2. Adoption of a positive program to avoid grievances.
3. Assurance to the aggrieved employee that he will not be discriminated against for filing any kind of complaint.

RECOGNIZING THE VALIDITY OF ALL GRIEVANCES.—All grievances—imaginary, real, valid, invalid—must be treated with equal seriousness. Facts and treatment appropriate to the particular grievance must be assembled to permit the employee to return to his job with the feeling that he has been heard and understood and that every consideration has been given to his case. He must always feel that he is an accepted member of his group—not an outcast. The approach, therefore, must be broad rather than narrow. This requires the support of top management.

AVOIDANCE OF GRIEVANCES.—The initial step in any grievance program is the positive one of avoiding grievances. This implies that the company management and its entire higher supervisory echelons direct their subordinates in such a way as to provide little or no basis for complaints. It requires, too, that the management provide general working conditions and practices that are acceptable to its employees. While it may be impossible to eliminate literally all grievances, certainly the number of grievances can be reduced to a minimum. The constructive personnel program and the principle of consultative supervision are two general approaches that are entirely practical in securing a working relation and environment that will produce a minimum number of grievances.

ELIMINATING DISCRIMINATION.—The aggrieved employee must be made to feel that however severe his complaint, he is in no danger by reason of the charges he has laid against his supervisor, company, or environment. There must be no lingering feeling that somebody will “get him” for filing a complaint, for should that spirit prevail, only the boldest employees will have the courage to complain; the entire process of employee readjustment will be defeated; and the feeling of injury will drop to lower levels of the mind with all manner of attendant perverseness, indifference, and lack of cooperation.

Grievance-Handling Machinery.—The method of processing or handling grievances is important for two general reasons: (1) it shows the intent and determination of management to see that grievances are adjusted properly and, more important, (2) it provides a definite, established channel for proper adjustment. It should be noted that delay and carelessness in processing grievances will breed indifference and negative reactions in spite of the management's desire for fair play.

Grievance-handling machinery should embody the following basic principles:

1. Grievances should be handled as swiftly as possible commensurate with care and thoroughness.
2. The aggrieved employee should have the aid and support of a representative in processing and arguing his case. Only the boldest and most

articulate employee will feel adequate to carrying his grievance through the machinery of adjustment. Furthermore, many employees cannot present their burden of feeling adequately or convincingly; yet failure of the employee to present his case adequately is not sufficient reason for denying him the proper adjustment. The attitude of management must be the correction of the difficulty and not merely gaining a nominal settlement or "victory." Who "wins" in a grievance is of no basic importance when the objective is understood to be that of adjustment, not settlement. The employee is not always right, nor is the management always wrong! Adjustment may require an alteration of managerial practice or treatment of the employee. It will always involve a reorientation of the employee in his working relationships. Only when the employee is given adequate support through all steps in the grievance-adjusting procedure can top management be certain that it is doing everything it should to induce proper adjustments.

3. The grievance-handling procedure should consist of a series of steps from the point of origin of the grievance to the highest point of final adjustment. Each step consists of a higher organization level which reviews the matter and attempts a settlement when failure of adjustment occurs at a preceding step. The number of steps should be fewer, rather than more, yet the number should not be so few as to make the point of final adjudication too readily accessible, or too many as to draw out the process of adjustment endlessly. The first step should consist of taking up the grievance with the aggrieved employee's immediate supervisor. The final step should be one involving the use of arbitration by some impartial individual or group.

An effective four-step procedure consists of the following levels:

- (a) Consideration of the complaint by the aggrieved employee's immediate supervisor.
- (b) In the event of failure to adjust at the first step, reference of the issue to the department head.
- (c) In the event of failure to adjust at the higher step, reference of the issue to the personnel director.
- (d) In the event of failure to adjust at the third step, reference of the matter to an arbitrator or board of arbitration for final settlement.

4. The grievance-handling machinery from lowest step to highest should be kept open, free from blocks and ready for use. Only in this way can needless delay be avoided.

The factors that threaten to delay adjustment are usually indifference among management representatives at the various steps of the procedure, ineptness in discussing and adjusting grievances at those steps, and uncertainty on the agency of final adjudication. The first two are matters

of management policy and of training. The last is a matter of foresight. If the board or individual who is to direct final settlement is designated in advance and maintains reasonable availability, particularly obstinate grievances can be processed to a reasonably sound adjustment promptly. Experience offers a variety of practices from which to choose: an arbitrator, board of arbitrators, rotating group of arbitrators from among whom one is chosen who is immediately available, and impartial chairman. The important test is the securing of impartial judgment. The lessons learned from the employer-union relationships should not be ignored or abandoned.

5. The grievance should be reduced to writing immediately after the first step. This is not a formal frill. Its value is simply that by reducing the grievance to writing, all parties, including the aggrieved employee, can keep clearly before them the nature of the complaint and its limitations. If the grievance is not reduced to writing, it will have a tendency to grow until at the second or third step after two or three weeks, perhaps, it will be so distorted and twisted as to constitute almost a different grievance from the original complaint. Obviously the attempt to adjust that distorted and twisted grievance will be hopelessly complicated.

6. It is usually good practice to fix a time limit for the filing of a grievance, for its appeal, and for disposing of it. Such time limit should not be misused to impose technicalities in the path of adjusting grievances. Its primary value is that of keeping all parties who are involved in the adjusting processes aware of the lapse of time.

7. Meetings for the adjustment of a grievance should be conducted on an informal rather than a formal basis. One of the important elements is to get the aggrieved employee to relax and to be receptive to the parade of facts, experience, and persuasive argument that may be advanced at these meetings. It must be understood that the process of discussing the case is itself a valuable factor in giving the employee a feeling that he is being heard and that real effort is being put forth to meet his complaint.

The Adjustment of Grievances.—The actual process of hearing and adjusting a grievance is not so simple, natural, or common-sense in nature as to warrant the looseness with which it is usually approached. Simple techniques of handling human nature realistically are involved that must be invoked if complaints are to be really adjusted. These elements of technique can be presented as a series of guides to the executive and supervisor:

1. Make yourself accessible to the aggrieved employee.
2. Put the employee at ease.
3. Pay strict and sincere attention to the statement of the employee.
4. Discuss the situation with him—do not argue.
5. Keep emotional reactions to a minimum.
6. Get his story straight.

7. Get all the facts that may relate to the case before attempting to reach a decision.
8. Avoid hasty decisions and snap judgments.
9. Make every effort to "save the face" of the aggrieved employee.
10. Weigh the consequences of possible settlement.
11. Be willing to admit your mistakes.
12. Take prompt but not hasty action.
13. Don't pass the buck.
14. Time your decision so that it will be most acceptable to the aggrieved employee.
15. Do not exceed your authority and explain fully and carefully, in cases whose settlement involve decisions beyond your authority, why you cannot make a decision.

The foregoing steps need no elaboration. Collectively they simply represent the variety of practices that as a whole can be designated as being humanly objective.

There are two further aspects of the problem which will be discussed at this point:

1. Training all levels of supervision in the proper methods of adjusting grievances.
2. Full explanation of grievance-handling machinery to office employees.

TRAINING FOR GRIEVANCE ADJUSTMENT.—The process of adjusting grievances and of handling human nature that is temporarily off emotional balance requires trained capacity. The executive or supervisor who can do the job without such training is rare. Unless the problem of adjusting grievances is taken with sufficient seriousness and made a part of the training program of executives, the actual adjustment of complaints may break at this point—the weakest link of the chain. The fact that the executive, too, is a human being and presumably, therefore, can apply his own understanding of human nature is apt to lull the individual into a false sense of understanding. Dealing with human nature realistically is too involved and too important for such a simple approach. The problem of dealing with the aggrieved employee is of course simply a part of the general problem of working with human nature under emotional stress.

INDOCTRINATION OF EMPLOYEES.—If employees are to have confidence in, and are to utilize, the established grievance procedure, they must know all about it—what it consists of, how to use it, to whom to go, why it has been put into operation, what it is hoped will be accomplished, and similar considerations. It should be publicized in a separate release or made part of the employees' handbook.

The Problem of Employee Representation.—Perhaps one of the most difficult problems that faces top office management in developing a program of grievance adjustment is that of securing adequate representation for the aggrieved employee. It runs two dangers of reaction: on the one hand, if the method of representing aggrieved employees suggests in any way an employee representation plan, it is legally taboo; at the other extreme, if it encourages employees to think in terms of organized strength, it is considered an invitation for them to unionize. Therefore many top office managements ignore this representation aspect of the grievance adjustment program. Even though the door to unionism may be opened by representation, however, the need for adequate adjustment of the aggrieved employee is more urgent than to avoid the question of an office union.

The different persons who may represent the employee with a grievance, depending upon the size of the business, the maturity of its personnel program, and the determination of its top management, are these:

1. The supervisor
2. The personnel officer or department
3. Department personnel adviser
4. The personnel counsellor
5. Employee beneficial group

The Supervisor.—Handling of grievances by referring them to the person's supervisor is perhaps the weakest plan inasmuch as the aggrieved employee must face his superior and not infrequently the complaint may concern that superior. It is difficult to avoid the established superior-subordinate relationship.

The Personnel Officer or Department.—Aggrieved employees may be directed to appeal to the personnel officer directly, or to a member of that department, when they have complaints. They are allowed to leave their desks, with the permission of their supervisors, for the purpose of filing the complaint and are represented in the various stages of processing the grievance by a member of that department until final settlement of the difficulty. This plan is entirely adequate if members of the personnel department have been imbued with a large measure of independent thinking and acting.

Department Personnel Adviser.—This is an individual appointed by top management through the personnel director to act as the representative of aggrieved employees for a stipulated period of time. If the job is rotated and if departmental employees are selected for strength and frank speech, it should prove an effective method.

The Personnel Counsellor.—This relatively new development in the personnel field offers a very effective agency for representing aggrieved em-

ployees. It is, of course, associated primarily with companies of larger size.

Employee Beneficial Group.—Where mutual understanding and confidence between the management of a company and its employees' beneficial group exist, the functions of the latter group can be expanded to include representation of aggrieved employees.

The test of any method must be candid and vigorous protection of the employee in the presentation of his case. It requires an individual who has the capacity to speak strongly and articulately; it requires that that person be asked not only to plead the case, but to investigate and gather such supporting evidence as is proper; and finally, it requires that both the aggrieved employee and his spokesman be granted time off from their regular work without prejudice.

Collective Bargaining

Background of Clerical Workers' Organizations.—The early records of union activity in the clerical field are so fragmentary that it is not possible accurately to trace the historical development of clerical unions before the turn of the twentieth century. It is known, however, that at the convention of the Knights of Labor in 1887, there were seven delegates out of a total of 188 who were representatives of clerical workers. Five of these delegates were listed as clerks, one as an accountant, and one as a stenographer. It is not known whether these seven persons came as delegates from local assemblies of clerks or as delegates from local assemblies which included clerks among their members. In general, it was the practice of the Knights to include all workers other than certain categories of so-called professional people such as lawyers, bankers, stockbrokers, and those who made their living from the manufacture or sale of intoxicating beverages. It is believed to be a reasonable assumption, however, that there were few, if any, local assemblies of clerks in the Knights of Labor organization.

The limited evidence available indicates that activity in the unionization of clerical workers continued through the remainder of the nineteenth century. There is no means of knowing the industries in which the activity was carried on, or the success which attended the efforts. It is certain, however, that some activity did continue, for at the 1904 convention of the American Federation of Labor, the records show that delegates from the Stenographers, Bookkeepers and Typewriter Operators Local No. 11,597 and also the Stenographers, Typewriter Operators, Bookkeepers and Assistants Local No. 11,773 were in attendance.

During the early part of the century the Brotherhood of Railway and Steamship Clerks had gotten under way and was making good progress.

By 1918, this union had developed its membership and status to the point where it could exercise considerable influence in its own behalf as well as for the benefit of allied groups. It has continued to make progress and today is a well organized and powerful bargaining unit. Its policies and practices are conservative and its relations with the railroads have been, on the whole, of a most constructive nature.

Federal locals, such as those previously mentioned (which were individually affiliated with the A.F. of L.), continued to grow and develop. Within a few years, they petitioned the American Federation of Labor for a national charter. The petition was refused and was resubmitted each year thereafter until, in 1920, the annual convention resolved to give consideration to the petition when the federal locals should have a total membership of 10,000. In 1921 the number was reduced to 5,000, and in 1922 the federal locals lost a fight to get the number reduced to 2,500. These figures are cited to furnish some idea of the number of members belonging to the federal unions. From this period to 1937 the number of locals continued to grow and they continued to petition the A.F. of L. for a charter and continued to receive refusals from the Federation. During this same period, the A.F. of L. also issued charters to four locals of bank clerks. In 1942, some 145 of these locals joined to form the International Council of Office Employees Unions. The organization of the Congress of Industrial Organizations, perhaps the more complete realization by clerical workers of the ineffectiveness of individual bargaining, and the revitalization of the American Federation of Labor have all contributed to rapid progress in the unionization of the clerical group since 1936. The United Office and Professional Workers Union has taken a commanding position in the field, although other affiliated and independent groups are making rapid progress.

Up to this time there is little evidence of an effort on the part of clerical unions to organize in a way that would put them in a position to engage in industry-wide collective bargaining, or to be included in, and as a part of, the bargaining unit functioning for the production and service workers. There are indications, however, that such a change in the organization plans and the strategy of clerical unions may occur in the future.

Why Do Clerical Workers Organize?—There appear to be more fundamental reasons for clerical workers to organize than the “psychology of their environment” which is most frequently suggested as the primary reason. Historically, the clerical employees have been regarded as a part of management and theoretically have enjoyed privileges and perquisites not available to the production workers. Consequently the office worker has not been as ready to place his employment relations problems in the hands of a representative for solution. He has felt, to a greater degree than the production worker, that he could handle his own affairs on an individual

basis. Because of his close association with management he has had greater opportunity to be heard. During the past ten years or so—in fact since the National Labor Relations Act (Wagner Act) was made law in 1935—there has been a greater trend toward unionization in the office than ever before. Some of the activity may be chargeable to the trend of the times. An examination of the demands of the office collective bargaining unit, however, may give clues to other reasons why office workers unionize. It is assumed that if an office worker has no grievances and gets along better without unionization, or feels that he can, he will not choose to be a member of a union and thereby will save his monthly dues. Some writers on this subject advance the thought that the office employee would never join a union if he felt that he would fare just as well without doing so.

The following points covering grievances or feelings, real or imaginary, are contributing factors which cause the employee to lend an attentive ear to the words of the union organizer :

1. *Compensation.* The production workers all around him have been winning hourly rate increases through the pressure exerted by their collective bargaining representatives. The earnings of clerical employees have not kept pace with those of the factory worker. Possibly the unionized office workers of other companies in the locality have received rate increases through collective bargaining.

Job evaluation techniques have been applied to the jobs of production workers in the company but have not been so widely applied to the jobs of office workers. An office worker may know of, or may feel that he knows of, certain rate inequities in the office which should be corrected. In fact, he may feel his own rate is out of line. He may feel that everyone else is being looked after but himself.

There is no date on which salaries or rates are reviewed. Management may have such dates established but the office worker may not know of the procedure. When promotions are effected, the employee may not receive increased compensation. In the factory any change of job brings a change in rate. It may be up or down but some change nevertheless takes place.

2. *Hours of Work.* What is the fixed work-week schedule? Is the office worker required to work overtime without advance notice? If so, do such instances occur very frequently?

Is the office worker properly classified under the Fair Labor Standards Act? If the office worker meets the salary criterion of FLSA he is sometimes considered exempt when in reality he is non-exempt and should receive overtime compensation.

3. *Vacations.* Is the vacation policy and plan in writing? Is the eligibility for vacation benefits subject to interpretation by a supervisor?

4. *Seniority.* Does the length of continuous service with the company give the office worker the same security or protection against layoff as it does the factory worker?

What about seniority when making promotions, transfers, demotions, etc.?

5. *Grievances.* The factory employee may present grievances through a regular procedure. Is there any such procedure available to the office worker?

6. *Discrimination.* In many areas of his employment the factory worker is protected against management discrimination. Is the office worker so protected?

7. *Fear.* Many of the items concerning the terms of his employment are spelled out for the factory employee. The policies and practices, so to speak, have taken on written form. Has this been done in the case of the office workers?

Establishing Collective Bargaining Unit and Agency.—The National Labor Relations Act of 1935 (and similarly the various State Labor Relations Acts) states in Section 1:

It is hereby declared to be the policy of the United States to eliminate the causes of certain substantial obstructions to the free flow of commerce and to mitigate and eliminate these obstructions when they have occurred by encouraging the practice and procedure of collective bargaining and by protecting the exercise by workers of full freedom of association, self-organization, and designation of representatives of their own choosing, for the purpose of negotiating the terms and conditions of their employment or other mutual aid or protection.

In general, the functions of the National Labor Relations Board which administers the act are to:

1. Prevent or suppress unfair labor practices.
2. Designate appropriate bargaining units.
3. Designate authorized bargaining agencies.

Should a group of office employees decide that they wish to formalize their organization into a union after a majority of the employees have joined the group, the leaders of such a group may petition the NLRB for designation as the sole authorized collective bargaining agency for their specified group of employees.

Whether the employees involved are engaged in interstate or intrastate commerce the procedure of the determination of the collective bargaining unit and agency is similar. In the case of the former the determination is

supervised by the representatives of the National Labor Relations Board and in the latter by the State Labor Relations Board if such exists in the state where the situation occurs.

If the employees have petitioned the office of the National Labor Relations Board for the determination of the appropriate bargaining agency the NLRB office will formally contact the employer, stating that a group of his employees seeks the exclusive right to bargain collectively with him. In order that the NLRB office may determine if they have any jurisdiction in the case they will request the employer to execute a form to determine whether or not the employees involved are engaged in interstate commerce. If the employees are so engaged the NLRB will take jurisdiction of the case. If not, the employer and the employees will be so advised by the NLRB office.

Where the case is under the jurisdiction of the NLRB, a representative of the NLRB will request a meeting of the employee and management representatives either at the NLRB regional office or at some other location convenient to all concerned and at a time satisfactory to both parties.

At this meeting the NLRB representative will act as chairman. He will call the meeting to order and state the purpose of the meeting, namely, that the employees of X company seek sole collective bargaining rights for a specific group of employees. In this case the assumption is made that the group consists of office workers who, other than by technical definition, may be described as—

employees of recognized office departments, excluding department heads, assistant department heads, supervisors, and employees of such departments doing work of a confidential nature and/or directly pertaining to management functions.

The chairman of the meeting will state that a list of all employees eligible for membership in the proposed collective bargaining unit will have to be prepared. The usual procedure is for management representatives to come to the meeting ready to discuss the list of office employees and to indicate those who are to be included in the unit.

The chairman attempts to secure agreement of the management and employees representatives as to the exclusions. In cases of dispute the NLRB representative will accept testimony from both sides and later make a ruling supporting either the management or the employee group. The collective bargaining unit as of that date will consist of the employees whose names are on the list which results from the discussion and final agreement. It is usually agreed that the list of names of which the unit consists shall also state the jobs held by those employees and which will be covered by the unit. Any future employee replacements of those on the list, or any additional employees as incumbents of these jobs, will be automatically covered by the collective bargaining unit.

The foregoing discussion concludes the detail on how the collective bargaining unit itself is decided. It has been assumed that the management of the company where these employees are working does not object in any way to the establishment of a collective bargaining group to represent the employees. However, should the management of the company object to the determination of the unit, or subsequently the agency which might represent the unit, it may not cooperate, if it chooses, in the manner above outlined. Should such be the management's attitude, the NLRB will proceed to determine if the company is engaged in interstate commerce and thereby determine if it—the NLRB—has any jurisdiction. If the NLRB does have jurisdiction and the management should then decide not to enter into any discussion of employee names in order to determine eligibility in the unit, the NLRB will request that management submit a list of all the employees working in the office together with a designation as to the employee job titles, and in some cases job descriptions. Even though the management will in no way cooperate with the NLRB in the determination of the unit, the unit will be determined nevertheless. Such being the case it is well that management participate in the determinations in order to present its own case and defend its position if defense is necessary.

Determining the Agency to Represent the Unit.—Once the collective bargaining unit is designated by the NLRB, the next step will be to determine the agency which will represent the employees of the unit. The agency may be affiliated with one of the national or international unions or it may be an independent union.

Usually at the same meeting at which the collective bargaining unit is finally decided the NLRB representative will ask the employee representatives if they have evidence that a substantial portion of the employees of the unit have indicated their intention to join the union. The employee representative will usually answer in the affirmative. The NLRB representative will ask the management representative if the management will agree to determine the agency by a cross check of union cards. (This means that the union will give the NLRB the union membership cards signed by the employees for the latter to check against the names of employees in the unit.) If a majority of the employees are members as shown by the cross check the NLRB will almost immediately designate the agency.

If the management will not agree to a cross check of cards, the NLRB representative will ask if the management will consent to an election. If management answers in the affirmative the NLRB will proceed with the arrangements for holding an election at some future time under its auspices. After the election the NLRB will designate the agency if a majority of the employees have so voted.

If the management will not consent to an election, the NLRB will then proceed to gather testimony both from the employees and the company representatives concerning the company's attitude. After such testimony is reviewed by the regional office, and usually by the Washington office, a decision will be made as to whether the NLRB will order an election or dismiss the case.

After the collective bargaining unit and agency have been determined, the usual and normal request of the employee representatives is for a meeting with management to undertake the negotiation of a collective bargaining agreement. Such agreements or contracts usually are drawn for a specified period of time and will cover the various items which the employer-employee representatives consider to be of greatest importance. The more clearly the agreement or contract can be written and agreed to by both parties, the more peaceful will be the future dealings. So say some authorities. Others feel that if the contract were to be so detailed and every item completely spelled out there would be no room for future interpretations of situations not contemplated at the time the agreement was written and signed. The clauses in some agreements are written in general terms only, the detail to be specifically outlined in supplemental agreements. The latter is particularly true where the company and union negotiate a master contract for all the locations of the company and each location subsequently negotiates a supplemental agreement covering the detail of the operation of the clause at the particular plant location.

Negotiations.—It is customary for the bargaining unit and company management to select negotiating committees which will negotiate the agreement and perhaps handle subsequent interpretations or supplemental agreements. The management committee usually consists of the personnel or industrial relations director, the office manager, and, in some cases, a member of top management. There are a great many variations in the selection of individuals to serve on management's negotiating committee. In some instances, the industrial relations director handles the task individually. In other cases, it is handled by corporation counsel, while in others, these individuals and other representatives of the company may serve as members of the committee. In the case of the union, employees and union officials usually form the committee. The union legal counsel may also be included.

Effectiveness in negotiations depends considerably on the composition and experience of the committees. It is safe to say that the union will choose its strongest leaders for the task. The employer should do likewise.

It is advisable to make few decisions at the first meeting. The committees should meet in a spirit of friendliness and attempt to negotiate an agreement harmoniously. Nothing is gained by either side if members of the committee become angry and resort to threats and loud talk.

Collecting Data.—Data collected should provide facts about the financial record of the company, wages being paid for similar work in the area, prevailing working conditions, cost of living, services given employees by the company, etc.

If it is the first time that the employer is confronted with a proposed agreement for a particular unit, every effort should be made to examine existing agreements in the area for the same class of work. This plan is suggested so that the agreement, when negotiated, will not contain clauses contrary to current practice in the industry.

Mediation, Conciliation, Arbitration.¹—The Act creating the Department of Labor (1913) gave the Secretary of Labor power to act as a mediator and to appoint Commissioners of Conciliation. From this power has developed the United States Conciliation Service, the oldest federal agency in the field of labor relations. Procedure before the Service is on a voluntary basis—requests for its assistance may be made to the Director of the U. S. Conciliation Service, Department of Labor, Washington, D. C.

In arbitration, after the parties to a dispute have agreed to arbitrate, their decision to that effect is made known to the Director of the U. S. Conciliation Service, who appoints an arbitrator and notifies the disputants of the appointment. The arbitrator contacts the disputants and arranges a hearing. A somewhat semi-formal atmosphere prevails at the hearing, and after all disputants have been given an opportunity to express themselves, the hearing adjourns, and the arbitrator is free to consider and decide upon the contentions of the disputants. His decision and award is filed with the Conciliation Service and copies are provided for the disputants.

Coverage.—It must be kept in mind that the collective bargaining agreement does not have a uniform pattern. It may vary in geographical coverage, scope, status of union, machinery for adjusting disputes, ways of meeting employment fluctuation, methods of wage payment, etc. Coverage may include some reference to the following:

Formal opening specifying the parties, length of contract, union status, employment procedure, collection of dues, membership requirements, working hours, apprenticeship and journeyman requirements, manning of equipment, seniority rights, non-receipt of struck work, strikes and lock-outs, use of union label, working conditions, jurisdiction over specific type of work, grievance procedure (steward-foremen or supervisor-joint standing committee), arbitration procedure (for understanding and interpretation of agreements), wages, overtime, Sunday and holiday pay, minimum hours of work, call back pay, termination pay, etc.

Sample Clauses in 24 Clerical Union Contracts.—The following typical clauses were extracted from among 24 clerical union contracts. Some of

¹ This section consists of extracts of portions of a paper published in the 1944 *Iowa Law Review* by Dr. Clarence M. Updegraff, Professor of Law, University of Iowa.

these contracts were made by unions affiliated with the A.F. of L. while others were taken from contracts of the C. I. O. and independent unions. They are designed to indicate the coverage and methods of describing the coverage. Following the contracts will be found a brief analysis of the detailed inclusions of each clause and in some instances the number of times these inclusions appear in the 24 contracts examined.

After the last clause reproduced, an exhibit from the contract of the clerical division of the United Rubber Workers with the Goodrich Rubber Company is reproduced. This has been included because of the somewhat unusual fact that this performance rating plan was developed through negotiation between the company and the union.

OBJECT OF AGREEMENT

The objects of this Agreement, in addition to the specific objects herein otherwise expressed, are:

- a. To preserve industrial peace.
- b. To improve the spirit of fair dealing between the Company and the employee.
- c. To increase discipline and efficiency by the intelligent cooperation of the Company and its employees.
- d. To promote more harmonious relations, cooperation, and understanding between the Company and its employees.
- e. To encourage economy of operations, elimination of waste, protection of property, and safety of employees.
- f. To insure true collective bargaining and to preserve fair standards of hours of labor, rates of pay, and working conditions.
- g. To continue the present high order of service to the public.

DEFINITION OF EMPLOYEE

The bargaining unit to be represented by the Union for the purpose of collective bargaining shall include all office and clerical employees at the Company, except:

1. Supervisors and assistant supervisors with authority to hire, promote, and discharge or to effectively recommend changes in the status of employees;
2. All employees of the plant engineering department (experimental and product designing);
3. All employees of the planning department, except typists and clerks;
4. All employees of the mechanical engineering department, except typists and clerks;
5. All employees of the industrial relations department;
6. All employees of the methods and rates department, except typists;
7. All employees of the improved methods department;
8. All employees of the cashier's department;
9. All credit union employees;
10. All employees of the plant protection department;
11. The secretary to the labor management committee;
12. Private secretaries to: the works superintendent, assistant work superintendent, auditor, plant engineer, production manager, storekeeper, the head

of the methods and rates department, training director, mechanical engineer, and the special engineer in charge of the parts department.

EXCLUSIVE BARGAINING AGENT

The Company agrees to recognize the Union as the sole and exclusive collective bargaining agency for all employees covered under this agreement except those particularly excluded herein.

NO COERCION BY UNION

Neither the Union nor any of its members will at any time or in any way, interfere with, intimidate, or coerce the Company employees, nor solicit Union membership, nor sign up members on Company time or on the Company's premises during working hours.

NO COERCION BY COMPANY OR UNION

The Company agrees that it will not in any way coerce or discourage any of its employees covered hereby from becoming or remaining members of the Union. The Union agrees that neither it nor any of its officers, agents, or members will in any manner intimidate or coerce any employee to become or remain a member of the Union.

CHECK-OFF

When an employee, either a present or future member of the Union, voluntarily, in writing, certifies that he is a member of the Union, and authorizes the Company to deduct Union dues regularly from his salary, such employee shall be obligated to the continuation of such deductions, as a condition of employment, during the term of this Agreement. Upon the receipt of the above authorization, the Company agrees to deduct from the pay for the first part of each month, starting with the calendar month following the date of authorization, the Union dues in the amount of \$1.00, to be paid to the proper Union official, designated in writing by the Union.

NO STRIKES OR LOCKOUTS

During the term of this Agreement, the Company agrees that there shall be no lockout, and the Union agrees that there shall be no strikes, stoppage, or slow-down of work; and it is mutually agreed that it shall be just cause for disciplinary action by the Union or by the Company of any one or more employees who shall participate in any strikes, stoppage, or slow-down of work.

WORK SCHEDULING

The final right to arrange working schedules rests with Management in order to avoid adversely affecting operations of the Office, and such schedules may be changed from time to time to suit varying conditions of the business, provided, however, that indiscriminate changes shall not be made in such schedules.

HOLIDAYS

The scheduled holidays which are to be observed as days off, are as follows:

New Year's Day
Washington's Birthday
Memorial Day
Fourth of July

Labor Day
Thanksgiving Day
Christmas Day

When any of the above holidays fall on a Sunday, the holiday shall be celebrated on the following Monday.

JOB AND RATE CLASSIFICATION

The range of salary rates applicable to any job shall be governed by the job evaluation and classification plan in effect from time to time. The evaluation and classification of jobs is a function of management. Within the established salary rate ranges, employees will be paid salary rates in accordance with their experience, ability, and proficiency as appraised by the Company. All salary rates and individual adjustments are subject to government salary control regulations. (A salary rate schedule has been agreed to by the parties, subject to War Labor Board approval, and such salary rate schedule and understanding of the parties pertaining thereto have been attached and are made a part hereof.)

NEW RATES

It is recognized that changing conditions and circumstances may, from time to time, require the installation of new rates or adjustment of existing rates because of the creation of new jobs, development of new procedures, changes in equipment, changes in the content of jobs, or improvements brought about by the Company in the interest of improved methods or procedures. Under such circumstances, when a bona fide new job or position is to be established; when changes are made in equipment, methods, or procedures which result in a substantial change in job duties or requirements; or when over a period of time an accumulation of minor changes of this type have occurred which, in total, have resulted in a measurable change in job duties or requirements, new rates for the new or changed jobs shall be established as follows:

- (a) Management shall develop an appropriate rate.
- (b) The proposed rate shall be explained to the grievance committee with the objective of obtaining its agreement to the installation of the proposed rate. Management may thereupon install such new rate. If the rate is installed without agreement, it shall subsequently be subject to adjustment as provided below.

TEMPORARY TRANSFER

Employees may be temporarily transferred, not to exceed two weeks, from any department or any job to another at the discretion of the Company without any change in rate of pay. If an employee is required for more than two weeks to perform work for which a higher rate of pay is in effect the rate of pay of such employee shall be reviewed to determine the rate applicable for the work performed, based on experience, adaptability, ability, and the usual qualifying factors. If an employee is required for more than two weeks to perform work for which a lower rate of pay is in effect, such employee, after two weeks, will be paid the rate for the work performed, except an employee's wages will not be reduced while temporarily replacing an employee absent because of illness, vacation, leave of absence, termination of employment, or assisting on other temporary work. When it becomes necessary to reduce the number of employees, the remaining employees are to take the rate of pay for the work to which they are assigned.

OVERTIME

For hours worked in a work week, as defined in this paragraph, the Company will pay employees, except those who are exempt under the Fair Labor Standards Act, premium compensation as described in the sub-paragraphs below:

- (1) One-half hour's pay for each hour worked in excess of eight in any one day, and
- (2) One-half hour's pay for each hour worked on the following nationally and Company-recognized holidays; namely, New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day, and
- (3) One-hour's pay for each hour worked on the seventh consecutive day worked within a regularly scheduled work week, and
- (4) One-half hour's pay for each hour worked in excess of forty (40) in a scheduled work week to the extent that hours in excess of forty (40) exceed the hours subject to premium pay under paragraph (1) above and to the extent that the hours worked in excess of forty (40) are not the same hours for which premium compensation is due under paragraphs (2) and (3) above.

SHIFT DIFFERENTIAL

It is further agreed that all other office employees working on the second and third shifts shall receive as a differential eight hours pay for seven hours of work.

MINIMUM PAY FOR REPORTING

If, after the employee begins work, there is a stoppage of work due to breakdown of power, machines, or other causes, the employee (a) may be assigned to any other available work during such time and paid the regular rate, or be sent home and paid for the actual hours worked but not, in any case, less than three (3) hours, except when failure to provide work is due to Acts of God or other conditions beyond the control of the Company. Payment, when such stoppage of work occurs, will be for the nearest one-half hour.

EQUAL PAY FOR WOMEN

Where women are assigned to do men's work or to perform work normally performed by men, they are to receive equal pay for equivalent work.

VACATIONS

Employees who, as of June 1st of each calendar year, have been continuously on the office payroll for more than six months, but less than 1 year, shall receive 1 week's vacation with pay. Absence due to illness, lay-off, or leave of absence, shall not be deemed to negate continuity of employment if such absences are limited to fifteen days or less, excluding absences taken under the sick leave clause.

Employees of more than 12 months get two weeks' vacation, with the same clause as above but allowing them 30 days of absence.

SENIORITY

In cases of promotion or increase or decrease of working force, the following factors shall be considered and where factors B, C, and D are relatively equal, factor A shall govern:

- A. Length of continuous service.
- B. Knowledge, training and ability, skill and efficiency.
- C. Physical or mental fitness affecting performance of services required.
- D. The extent to which the employee customarily contributes part of his earnings to the support of others than himself.

PREFERENTIAL SENIORITY

It is agreed that a number not to exceed 12 of the Local officers, plant grievance committeemen, and stewards of the Union shall be accorded a preferred seniority status subject to provisions hereinafter stated. In the event the working force increases or decreases substantially from its present number, the number of officers, committeemen, and representatives of the Union who shall have such preferred seniority status may be increased or decreased by mutual consent of the parties.

GRIEVANCES

An earnest effort will be made to adjust immediately any differences arising between the Company and an employee or the Union, with respect to the meaning and application of the terms of this Agreement, in the following manner:

- Step 1—Between the employee and the supervisor designated by the department head to whom the employee reports;
- Step 2—Between the employee, accompanied by a member of the negotiating committee, and the department head to whom the employee reports;
- Step 3—Between a member or members of the negotiating committee, and the plant manager or his assistant;
- Step 4—Between (a) members of the negotiating committee and representatives of the International Union, and (b) representatives of the Company;
- Step 5—In the event the grievance shall not have been adjusted to satisfaction of either party under Step 4, above, the matter may then be submitted to an impartial arbitrator to be appointed by mutual agreement of the parties hereto. In case they cannot agree on an arbitrator within a week from the date of receipt of written notice by either party of the other's dissatisfaction with the results of Step 4, either party may request the director of the United States Conciliation Service to appoint one. The scope of arbitration shall not exceed the meaning and application of the provisions of this Agreement and shall in any event be limited to the specific subject matter jointly submitted to the arbitrator. The arbitrator shall not have the authority or power to deprive the Company or the Union of any of their respective rights and privileges, whether or not created by this Agreement. The decision of the arbitrator shall be final and binding on the parties. The expense of such arbitration proceedings shall be borne equally by the Company and the Union.

MILITARY LEAVE

Any employee who enlists or is drafted into any branch of the Armed Forces of the United States shall be given an automatic leave of absence for such period of service. Any such employee shall be entitled to receive any earned vacation due and accumulated at the time such employee enters the Armed Forces of the

United States, and shall be returned to work with the Company according to his seniority, which shall be accumulative throughout the period of his leave, provided the employee has received a certificate to the effect that he has satisfactorily completed the period of service required of him, and he is physically acceptable and still able to perform the duties of such position, and he makes application for re-employment within ninety days after being discharged from such active military duty or service. An effort will be made to re-employ men who are disabled in service if they are not able, because of their disability, to return to their former occupations.

SICK LEAVE

An employee necessarily absent from work because of disability due to non-occupational sickness or injury shall be entitled to sick leave with pay during any calendar year, in accordance with the following schedule:

<i>Total Service of Employee</i>	<i>Sick Leave Allowable</i>
1 year to 2 years	1 week
2 years to 5 years	2 weeks
5 years and over	4 weeks

LEAVE OF ABSENCE

Upon written request of an employee, a leave of not to exceed sixty days may be granted such employee by the head of his division, provided that the employee can be spared from duty and that other employment is not taken during such leave.

Upon reasonable notice from the employee of a desire to extend the leave as granted above, and with the approval of an officer of the Company, such leave may be extended to make the total period of leave not to exceed six months. If the employee on such six months' leave shall remain away for more than six months, or if he shall accept employment elsewhere while on such leave without the sanction of the Company, his employment with the Company shall be deemed to have terminated.

LEAVE FOR UNION BUSINESS

Any employee elected or appointed to work for the National or Local Union shall be granted a written leave of absence, not to exceed the term of this Contract, and any renewal thereof, and upon termination shall be entitled to resume his seniority status, provided that said leave of absence will be cancelled and seniority forfeited if the employee on leave does not report within two days after the expiration of said leave, unless he has just cause.

MANAGEMENT RIGHTS

The management of the office and the direction of the working forces, including the right to hire, assign duties, promote, demote, suspend or discharge for proper cause, or transfer, and the right to relieve employees from duty because of lack of work, or for other legitimate reasons, is vested exclusively in the Company, provided that this will not be used for purposes of discrimination against any employee.

SAFETY AND OPERATING RULES

As the occasion demands, certain rules and regulations concerning management, safety, police and fire protection, etc., are issued for the benefit of both the

management and its employees; but these rules and regulations shall not be so devised as to abridge the rights of the employees guaranteed by this Agreement. Violation of any of these rules shall be sufficient cause for discipline or discharge provided that the claims for all wrongful or unjust discipline or discharge for such violation shall be subject to the grievance procedure herein provided. The rules and regulations shall be mutually agreed upon by the Company and the Union.

BULLETIN BOARDS

The Company agrees to post notices of meetings and social activities of the Union on the bulletin boards in the office, provided such notices bear the Union seal and are previously presented to and approved by the plant manager or his assistant.

MODIFICATION OF CONTRACT

This agreement may be changed or modified only by a supplementary agreement in writing, signed on behalf of the employer by its president and director of industrial relations, and on behalf of the Union by its president of the Local Union and a representative of the International Union.

CONTRACT SUBJECT TO ALL VALID STATUTES

The provisions of this agreement are subject to the terms of such valid statutes, orders, and regulations as shall be applicable hereto.

B. F. GOODRICH COMPANY'S PERFORMANCE RATING PLAN FOR SALARIED OFFICE EMPLOYEES²

(Note: The following performance rating program for salaried clerical workers appears as an exhibit to the contract negotiated between B. F. Goodrich Company and CIO's United Rubber Workers.)

EXHIBIT II

PERFORMANCE RATING PROGRAM

The performance rating program outlined herein has been developed through negotiations with the Office Workers Division of Local No. 5. Both the Company and the Union have felt it advisable to develop an objective method for evaluating the performance of each employee on his job and by that method determine the employee's appropriate salary. This program is designed to accomplish the following objectives:

1. *Salary Adjustments*

It is felt that standards should be established and employees rated against these standards in order that the employee may be properly compensated. This performance rating plan will help in attaining the information necessary to assure proper salary adjustments and will also provide a method whereby it is possible to assure equitable treatment to all employees in each job classification.

² Reproduced through the courtesy of the B. F. Goodrich Company, Akron, Ohio.

2. *Efficiency*

The progress of each employee can be followed closely by comparing his rating from time to time. An employee should show improvement until a reasonable degree of efficiency is reached. If he does not reach the satisfactory degree of efficiency within a reasonable length of time, steps should be taken to correct this deficiency. Perhaps a different job or change in surroundings may solve this problem.

3. *Separations for Cause*

This performance rating plan will permit a more accurate determination of those employees whose work is completely unsatisfactory. There will be established evidence of their unsatisfactory work in case it is deemed advisable to separate the employee from the Company's rolls.

STANDARDS OF MEASUREMENT

In cooperation with the Union, the standards set forth below were selected as those most likely to objectively measure an employee's performance of his job. The "satisfactory" standard of measurement shall be full and satisfactory performance of the job. Three steps are established below "satisfactory" and two steps above "satisfactory."

1. *Quality of Work*

Point Value

This factor appraises the employee's performance in meeting the established quality standards regardless of quantity.

- | | |
|---|----|
| A. Excellent. Consistently does an excellent job. Neatness and accuracy are such that rejects and errors are very rare. Almost no checking of work necessary. | 60 |
| B. High. Usually does a good job. Seldom makes errors. Little checking of work necessary. | 40 |
| C. Satisfactory. Accuracy and neatness meet full and satisfactory requirements of the job. Normal amount of checking necessary. | 26 |
| D. Fair. Work is usually passable. Must sometimes be told to do a better job. | 16 |
| E. Low. Work barely gets by. Often makes mistakes and is careless. | 10 |
| F. Unsatisfactory. Work completely unsatisfactory. | 0 |

2. *Quantity of Work*

This factor appraises the employee's performance in meeting the established quantity standards regardless of quality.

- | | |
|--|----|
| A. Excellent. Exceptionally fast worker. Output unusually high. | 60 |
| B. High. A fast worker, usually does more than is expected. | 40 |
| C. Satisfactory. Turns out the amount of work that is considered as full and satisfactory for the job. | 26 |
| D. Fair. Seldom if ever turns out required amount of work. | 16 |
| E. Low. Slow, output at a bare minimum. | 10 |
| F. Unsatisfactory. Output completely unsatisfactory. | 0 |

3. *Freedom from Supervision**Point Value*

This factor appraises the employee's performance in relation to the frequency and amount of supervision required by the job.

- | | |
|---|----|
| A. Excellent. Directs own work without supervision. The type of employee who comprehends the situation quickly and needs to be told only once. | 60 |
| B. High. Seldom requires supervision and seldom that orders or directions must be repeated. | 40 |
| C. Satisfactory. Follows directions and orders with a normal amount of supervision for this job. | 26 |
| D. Fair. Directions must be repeated frequently. Does not follow directions as given. | 16 |
| E. Low. Requires almost constant supervision. | 10 |
| F. Unsatisfactory. Needs supervision to such a degree that it is easier to do the job yourself than to supervise the employee's performance of the job. | 0 |

4. *The Ability to Get Along*

This factor appraises the extent to which the employee is willing to work with his superiors and associates on the job.

- | | |
|--|----|
| A. Excellent. Gets along exceptionally well with those whom his job requires him to contact. Always does more than is normally expected in helping supervisors and other employees. Enthusiastic and accepts suggestions or constructive criticism of actions. | 30 |
| B. High. Can go along with others when work load starts to build up pressure. Never causes friction. Good morale builder. Leaves a good impression on superiors and other employees. Good man on a team "whether in the backfield or on the line." | 20 |
| C. Satisfactory. Generally cooperative and eager to get the job done together with others, even though problem may be somewhat unusual. Seldom causes friction. Acceptable to his associates. | 13 |
| D. Fair. Fair team worker but lacks average willingness to play all positions in an emergency. Would rather rely on others in this respect. Cooperates when asked. Sometimes has difficulties with his contacts with both superiors and other employees. | 8 |
| E. Low. Reluctant to cooperate—"Lone wolf operator." Waits to be told. Wrong attitude. Irritates. | 5 |
| F. Unsatisfactory. Lack of ability to get along with others to such a degree that performance of the job is completely unsatisfactory. | 0 |

5. *Length of Job Service*

This factor appraises the employee's performance in relation to the established time during which full and satisfactory performance of the job should be achieved.

- | | |
|--|----|
| A. Excellent. Attains full and satisfactory performance of the job within an exceptionally short period of time. | 60 |
|--|----|

	<i>Point Value</i>
B. High. Attains full and satisfactory performance of the job within a relatively short period of time.	40
C. Satisfactory. Attains full and satisfactory performance of the job within the established time during which such performance should be attained.	26
D. Fair. Fails to attain full and satisfactory performance of the job within the established time and a relatively long period of time has elapsed since the employee has been assigned the job.	16
E. Low. Fails to attain full and satisfactory performance of the job within the established time and an exceptional period of time has elapsed since the employee has been assigned the job.	10

ADMINISTRATION OF THE PERFORMANCE RATING PLAN

Employees are to be rated and salaries reviewed at semi-annual intervals. In the case of new employees or transferees who show unusual progress, review of their rating may be made prior to the next semi-annual review.

After the employee has been rated on each factor, his total score shall be the sum of all factors. The tables set forth below shall govern in the conversion of points into the appropriate salary.

Job Performance Rating Points	MINIMUM DOLLAR VALUES—GROUP I JOBS								
	Salary Ranges								
	140	150	165	175	185	195	205	220	235
260-270	130	140	150	160	170	180	190	200	210
173-259	120	130	140	150	160	170	180	190	200
112-172	110	120	130	140	150	160	170	180	190
69-111	105	110	125	130	140	150	160	170	180
40- 68	100	105	120	125	135	145	155	165	175

Job Performance Rating Points	MINIMUM DOLLAR VALUES—GROUP II JOBS								
	Salary Ranges								
	190	200	215	230	250	270	290	310	335
260-270	170	180	195	210	230	250	270	290	310
173-259	160	170	180	195	215	230	250	270	290
112-172	150	160	170	180	200	215	235	255	270
69-111	140	150	160	170	190	200	220	240	255
40- 68	135	145	155	165	180	190	205	225	240

Detailed Analysis of the Sample Clauses.—A more detailed analysis of the 24 contracts referred to in connection with typical clauses reveals wide divergence as to the detailed provisions covered in these clauses. This analysis, which is reproduced below, shows the major variations found. In some instances where the variations are limited, the number of contracts containing each of the provisions is indicated. If the variation is wide each contract stipulation is shown or at least those which are not identical or very similar in meaning and terms.

1. GENERAL PURPOSE AND OBJECT OF CONTRACT

- Fair standard of rates of pay
- Fair standard of working conditions
- Fair standard of hours of work
- Preservation of industrial peace
- Prevention of interruption of work, or work stoppage
- Adjustment of grievances
- Promotion of cooperation and understanding
- Promotion of economy of operation
- Promotion of safety practices
- Promotion of collective bargaining
- Promotion of harmonious relationships
- Promotion of employer-employee relationship
- Promote fair dealing
- Promote high order of public service
- Increase discipline and efficiency
- Promote industrial progress
- Promote security and continuity of employment
- Sustain high production
- Protection of property

2. AGREEMENTS EXCLUDE THE FOLLOWING WORKERS

- Supervisory
- Administrative and executive
- Confidential
- Those authorized to hire or fire
- Foremen
- Assistant foremen
- Department heads
- Assistant department heads
- Private or confidential secretaries to certain executives
- Those employed on management functions, directly
- Members of industrial relations department
- Policemen, guards, watchmen, or security employees
- Students or trainees
- Apprentices
- Technicians
- Professional workers
- Nurses
- Time checkers
- Time study and rate men
- Production control personnel
- Accounting personnel

3. MEMBERSHIP

- Mandatory maintenance of membership (12)
- Check-off:
 - Voluntary (7)
 - Mandatory (7)
- Indemnifying clause protecting company as a result of check-off operation (4)

4. NO COERCION OR DISCRIMINATION

Both parties agree (14)
Company agrees (4)
Union agrees (2)

5. CLAUSES ON WAGES

Provides for renegotiation

- minimum time payment, if failure to work is not employee's fault
- payment only for time worked
- across-the-board raise
- no changes in scale unless new conditions arise
- minimum salary
- payment on basis of job evaluation
- procedures for pay-day
- basis for overtime computation
- differential for shift work
- temporary employees
- women getting equal pay
- retroactive pay
- severance pay
- merit rating
- bonus payments
- adherence to appended wage schedules

6. HOURS OF WORK

- Establishes eight-hour normal day.
- Maintains prevailing practice.
- Defines normal hours of work.
- Sets regular schedules of hours of work.
- May require reasonable overtime.
- Specifies lunch periods.
- Sets policy for absenteeism.
- Sets policy for tardiness.
- Sets policy for time clock.

7. HOLIDAYS

- New Year's Day
- Memorial Day
- Fourth of July
- Labor Day
- Thanksgiving
- Christmas
- Washington's Birthday
- Good Friday *
- Lincoln's Birthday
- Columbus Day
- National Election Day
- Armistice Day
- State Fair Day (half-holiday)
- Sunday holidays celebrated Monday

* Memorial Day may by mutual consent be substituted for Good Friday.

8. OVERTIME

Time and a half for overtime
 Double time for Sundays and holidays
 Double time for seventh consecutive day
 Overtime to be equally distributed
 Prohibits taking time off to equalize overtime
 Provides for minimum hours of pay when specially called in
 Grants meal allowances

9. VACATIONS

(Necessary period of work to yield number of days' vacation)

1,500 hours (excluding overtime)—5 days

Within 4 months —1 week

More than 4 months —2 weeks

More than 15 years —3 weeks

Less than 5½ months —1 day per month worked

More than 5½ months —5 days

More than 5 years —10 days

More than 6 months —2½ days

More than 12 months —5 days

More than 18 months —7½ days

More than 24 months —10 days

More than 6 months —6 days

More than 1 year, with 51% of year on 48-hour week —12 days

More than 1 year, with 51% of year on 40-hour week —10 days

Less than 1 year—1 day per month worked, maximum 1 week

Six months	—1 week	} (Modal)
1 year	—2 weeks	

More than 12 months —5 days

More than 24 months —10 days

6 months —1 week

1 year —1 week plus 1 day

2 years —1 week plus 2 days

3 years —1 week plus 3 days

4 years —1 week plus 4 days

5 years —2 weeks

More than 1 year —1 week

More than 3 years —1½ weeks

More than 5 years —2 weeks

Less than 1 year —1 week

More than 1 year —2 weeks

More than 20 years —3 weeks

Employee chooses vacation period.

Senior employee has prior choice.

Final scheduling of vacation, company prerogative.

May *not* waive vacation and work instead.

May waive vacation and work instead.

May *not* postpone vacation from year to year.

At company option, temporary shut-down may be vacation period.

Upon prior arrangements, vacations may be split.

Upon termination of employment, will be paid for entitled vacation time.

Vacation time not considered earned and no payment upon termination of employment.

If laid off, will be given 1 day vacation for each month since last vacation.

10. SENIORITY

Factors resulting in loss of seniority:

Resignation

Discharge

Absence of 3 days without just cause

Absence of 6 days without just cause

Any period of absence greater than 6 months

Any period of absence greater than 1 year

Any period of absence greater than 2 years

Any period of absence greater than 3 years

Failure to return from leave of absence

Refusal to return to work after due notice

Failure to maintain union membership

Basis of promotions, hiring and firing:

(a) Continuous service (10)

(b) Ability, knowledge, training, etc.

(c) Physical fitness

(a) Ability, knowledge, training, etc. (5)

(b) Physical fitness

(c) Continuous service

Basis of layoff:

Divisional—last hired, first fired

Divisional—length of service and ability

Plant wide—plus fitness and ability

Solely on basis of continuous service in plant

Length of probationary period, without seniority:

First 30 days

First 3 months (modal point)

First 4 months

First 6 months

Preferred seniority to union officials.

No loss of seniority, if on leave of absence for union business.

Provides for job and shift seniority preference.

In rehiring, and layoff, special arrangements provided for certain key personnel, seniority notwithstanding.

Layoff and rehiring on basis of seniority and ability is at the discretion of the company; and is not subject to arbitration.

Seniority will be accumulated where employee is promoted and then later demoted to original position.

Seniority will be maintained during injury or sickness.

11. MANAGEMENT PREROGATIVES AND RESPONSIBILITY

- Direction of working forces
- Management of works
- Determine kind, class, and character of work
- Determine products to be manufactured
- Determine schedules of production
- Determine processes of manufacture and assembly
- Procure any semi-manufactured and finished parts for incorporating in final product
- Use any type of equipment and machinery
- Adapt and establish safety procedures
- Determine the number of employees
- Consolidate, discontinue, or create any department, shift, or division
- Right to hire
- Suspend or discharge for cause
- Relieve from duty due to lack of work
- Transfer
- Assign duties
- Determination of promotion qualifications
- Promote
- Demote
- Maintain discipline and efficiency

12. MANAGEMENT

- Agrees to cooperate to promote harmony and efficiency among employees.
- Extend considerate and courteous treatment to employees.
- To furnish union with names of its grievance officials.
- To furnish union with detailed lists of employees laid off due to lack of work.
- To furnish union with employment notices covering new employees.
- To furnish copies of all termination notices.

13. DISCHARGE

- Company has right to discharge.
- Discharge to be only for just cause.
- Not subject to arbitration, except for Union discrimination.
- Cause for discharge must be sustained at hearing.
- May be discharged for infraction of rules.
- May be discharged if employee improperly strikes.
- Union may challenge and institute grievance procedures.
- Advance notice to be given by company.
- Employee must be informed of reason for discharge.
- If discharged for cause, employee loses vacation rights.

14. SAFETY, HEALTH AND WORKING CONDITIONS

- Company to provide reasonable safety and health measures.
- Existing practices (of safety) to be continued.
- Safety rules to be observed.
- Company to provide proper heating, lighting, and ventilating systems.
- Company to pay for time lost due to injury (up to 8 hours).

Company to maintain dispensary with a registered nurse in charge.

Candidate must take physical exam to qualify for employment.

Employee absent more than 2 weeks must get physical check from company physician.

Also includes—

- Medical service
- Sickness allowance
- Rest periods for women
- Lunch periods
- Smoking
- Intoxicating liquors
- Telephones
- Parking facilities
- Identification badges
- Canvassing or selling
- Time to vote
- Jury duty
- Group insurance
- Retirement plan

15. RATE ESTABLISHMENT

Contract includes a list of job classifications covered.

Company makes available job classifications and rates of pay to Union.

Provides for periodic review of wage classification.

New jobs are to be added to classification.

Company to pay prevailing rates.

Company and Union to engage in joint study to suggest improvements.

Trial period permitted, before promotion becomes final.

No reduction of wages, unless demoted to other job.

Provides for service increases.

Provides for merit increases.

Provides for termination pay.

16. MILITARY LEAVE

All contracts provide for military leave, and accumulation of seniority while in service.

17. GRIEVANCE COMMITTEE

Establishes committee as part of grievance procedure.

Establishes minimum number of meetings per month.

Given necessary time *without* pay (3).

Given reasonable time with pay (3).

Grievances must be on agenda prior to discussion.

Members may visit other departments on legitimate business.

Minutes of meetings must be kept.

18. GRIEVANCES

Provides for orderly settlement of grievances and pledges no work stoppages.

Grievances must be in writing.

19. ARBITRATION

Number of steps before arbitration

—2 (3 contracts)

—3 (2 contracts)

—4 (6 contracts)

—5 (2 contracts)

Provides for disinterested chairman of arbitration board.

Provides for impartial umpire.

Arbitration board unable to modify, enlarge, or restrict agreement.

Decision of board must be in writing.

Majority decision final and binding upon both parties.

Expenses of arbitration equally borne.

Arbitration obligatory under state law.

Agencies that may be resorted to for aid in arbitration:

National War Labor Board

Regional War Labor Board

District Judge of State

State Employment Relations Board

American Arbitration Association

Director of United States Conciliation Service

20. SUBJECT TO GRIEVANCE PROCEDURE

Interpretation and application of contract

Wages

Hours

Employer-employee relations

Determination of membership

Disciplining

Discharge

Discrimination

Suspension

Layoff

Transfer

Rehiring

Promotion

Merit increases

Seniority listing

New wage rates

New job or position responsibilities

21. BULLETIN BOARDS

Company to provide boards (9)

Union to provide boards (1)

Union to use same boards as company (4)

Only union business notices to be posted

Approval of company necessary before notices can be posted (mode)

Approval of company may be necessary (1)

22. DURATION OF CONTRACT

One year (4)

Two years (1)

From year to year unless notice is given (14)

23. LEAVE OF ABSENCE

Provides for leave (indeterminate length)

- leave of 30 days
- leave of 60 days
- leave of 6 months

Provides for extension of leave (indeterminate length)

- extension for maximum of 30 days
- extension for maximum of 6 months
- extension for maximum of 1 year

Provides for maternal leave for maximum of 6 months

- maternal leave for maximum of 12 months

Provides for leave for Union business (indeterminate length)

- not to exceed term of this contract
- 1 year
- 1 year but renewable
- 2 years
- 3 years

24. SICK LEAVE

Employee must notify company of illness.

Employee must furnish physician's certificate upon return.

Company has the right to have employee examined by company physician.

False reporting of illness subjects employee to dismissal.

Extended sick leave without pay may be granted for 6 months.

Extended sick leave without pay may be granted for 1 year.

N.B. One contract between an Independent Union and a Utility Company includes the following provisions:

- (a) Employee while on sick leave cannot leave the city without permission.
- (b) No sick leave allowance will be paid for illness due to immoral, intemperate, or disorderly conduct.

25. STRIKES AND LOCKOUTS

Pledge no stoppage or slow-down by employees.

Pledge no lockout by company.

Company may discipline (including discharge of) employees for violations of no-strike pledges.

Strike terminates contract.

Union agrees that it shall not involve company in jurisdictional dispute.

26. UNION PREROGATIVES AND RESPONSIBILITY

Members pledge to work in harmony with non-union members.

Members pledge to perform loyal and efficient work.

Union will not engage in Union activities on Company time.

Union will not distribute pamphlets, advertising, or political matter on company premises.

Union representatives free to communicate with employees or Union executives upon official business, with approval, at reasonable time.

National union representatives have right to visit personnel office on official union business upon prior notice to management.

Union has right to submit applicants for new jobs from those laid off due to no fault of their own.

Union will furnish company with list of stewards and members of bargaining committee.

Union to review promotions.

Union to review layoffs prior to layoffs.

Union to designate persons having preferred seniority (but these must be Union officials).

Union may request job classification of any individual employee.

Union may discuss job classifications of new employees.

27. MODIFICATION AND AMENDMENT OF CONTRACT

Amendments and supplement may be made by mutual agreement at any time.

At any time will negotiate changes only in wages.

Will negotiate wage changes only in second 6 months of agreement.

Will permit one renegotiation of wages, if national wage stabilization policy changes.

Contract automatically amended to conform with any applicable law.

28. JOB-BIDDING

Three companies have job bidding systems.

29. GOVERNMENTAL REGULATIONS

Executive order 9240 to govern.

Provisions requiring a governmental agency's approval shall be effective upon such approval.

Provisions of agreement subject to terms of all applicable laws.

Any law invalidating a particular section shall apply only to such sections Jurisdictional dispute to be settled by a governmental agency.

Labor Terms and Phrases.—Every office manager may some day be a negotiator. Whether a representative for labor or management, he should be familiar with labor terms and phrases, such as the following:

Open Shop—One where membership or non-membership in a labor union is not the primary requisite for employment.

Closed Shop—One where employment is denied non-union persons, and any member not remaining in good standing in the union is subject to dismissal.

Union Shop—Same as the closed shop except non-union persons may be employed with the understanding that they must join the union in a specified period of time.

Preferential Shop—One where the employer and union agree that, in the hiring of new help and in reemployment, preference will be given to union members, when they are available.

Maintenance of Membership—This means that the company is required to discharge an employee who belongs to the union but fails to remain a member in good standing.

Remaining in Good Standing—This means that union members must keep dues and assessments paid.

Union Security Agreement—This is an agreement between the parties specifying that employees who are members of the union at the time the agreement is signed or those who later become union members must remain in good standing throughout the term of the agreement.

Check-Off—An automatic and regular procedure whereby the employer deducts, from the employee's pay, the union dues and pays them to the union.

Bargaining in Good Faith—This means that each side presents a proposition and, where there are differences, concessions are made through harmonious negotiation and agreements, or it is agreed to mediate or arbitrate.

Compulsory Arbitration—Legislative authority to intervene in disputes and compel disputing parties to submit their disagreement to an arbitrator for decision and to accept his award.

Jurisdictional Disputes—A dispute between two or more unions as to which one has the right to do certain work or bargain for a certain group of employees.

Office Public Relations

Opportunities for Building Goodwill.—It is doubtful whether the office manager gives much thought to the matter of the relationship between his regular duties and the general public. Nevertheless, because of the nature of his work, he is almost continually making decisions and is responsible for actions which may have far-reaching effects in the field of public relations. It may be assumed that the successful office manager is one who is conscious that he is striving to merit the public's approbation for his company, and for his company's goods or services.

Public relations means human relations based upon mutual understanding and goodwill. Good public relations are the direct product of making friends outside the organization and keeping them friends. The office manager has the responsibility to his company of helping to create and maintain good public relations. While he is limited in his opportunities of making direct contacts personally or by correspondence with any considerable number of outside people, the contacts made by persons other than himself, but which reflect his opinions and decisions, are usually numerous.

It is not enough to persuade the public regarding the desirability of the company's goods or services. Both senior and junior executives should be active at all times in promoting a democratic following of the free enterprise system. A part of this promotion should be the development of good public relations which reflect right thinking, right acting, honesty of purpose, and which of necessity must be in line with the public good.

Public relations are frequently thought of only in terms of advertising and publicity. Instead, they cover the broad field of human contacts and

reactions. Their scope may be more specifically considered under the following headings:

1. Community relations
2. Supplier, customer, and general public contacts
3. Government relations
4. Stockholder relations
5. Press relations
6. Employee or industrial relations

In these relations the office manager, with the exception of that with stockholders, is in a position to make constructive contributions.

Community Relations.—Two-way benefits accrue as the result of the office manager taking an active interest in church, school, civic, charitable, social, and business organizations. Attendance at meetings, association with persons in various fields of endeavor, the opportunity of speaking in public—all these have a broadening effect. Business should not be an office manager's sole interest. Being absent from his office for such legitimate reasonable purposes gives him a new and better perspective of his day-to-day problems.

The office manager should have a part in the development of employees in the community even before they become his employees. He may accomplish this purpose by being interested in the training given to young people in the academic and commercial courses of his community's high and commercial schools, using his influence to have the best possible courses of study and training adopted by the schools, so that when the graduate comes into his office he may continue his development from the point where the school left off.

The office manager will find it worth while to know personally the principals and placement officers of the commercial high schools of his city. They, in turn, will value his friendship and counsel. Wide-awake teachers are ever seeking practical methods, while teaching the theories and principles of business operation. The commercial teacher and the office manager have much in common. Invitations should be extended to teachers and their students to visit business offices to see for themselves the practical application of methods studied during their period of training and learning.

A mature office executive should be willing to accept public appointments and assume responsibility in civic affairs. He is well qualified to assist municipalities and other civic bodies in shaping their policies, and can be of much value in modernizing their financial and accounting procedures, records, and personnel setups.

Office managers and supervisors likewise should belong to technical associations or societies in their respective special fields. They will benefit

by joining Boards of Trade or Service Clubs. While in attendance at meetings of these bodies they should exercise care by being specific in stating that they are expressing their personal views, not committing their companies to any action without official approval. Goodwill may thus be established as the opportunity presents itself.

In taking part in such community activities the office manager helps to better the affairs of his community and, in turn, his company receives benefits from the resulting public attention and approbation.

Supplier, Customer, and General Public Contacts.—The office manager is likewise able to cultivate goodwill by direct contacts with suppliers, customers, and the general public. In this case, he is on his own ground and for that reason needs to be even more careful of his words and actions. A policy of frankness and fair dealing should be adopted. Visitors should be received in the spirit of friendly welcome. Work in hand should be set aside, the visitor made to feel at ease, and the subject for attention taken up promptly. The discussion should be brought to the point reasonably quickly and kept there. Decisions, also, should be prompt, definite, and fair.

Goodwill may be acquired through the payment of suppliers' accounts strictly in accordance with terms of purchase. The practice of replying promptly to suppliers' correspondence is important. Similarly, the prompt payment of legitimate bills is highly productive of goodwill.

Government Relations.—In recent years, business has become increasingly subject to governmental taxing and controlling authorities, certain of which are probably permanent agencies. In contacts with these agencies the office manager has an opportunity to build up among the responsible heads a good opinion of business generally, and of free enterprise in particular. As a rule, he will find it advantageous to cooperate with government representatives on a man-to-man basis. A reasonably free exchange of viewpoints and frank discussion of pertinent matters under consideration will generally result in mutual and satisfactory settlements of problems and outstanding differences.

Service on government advisory or executive boards should be accepted upon the government's request. Many valuable contributions have been made by business and industrial executives to various government agencies.

Press Relations.—Office executives do well to establish close relations with the press and take editors, staff correspondents, and reporters into their confidence. Local publications welcome news items, and press associations appreciate receiving authentic statements of important developments while these items are news. Press releases should be, without ambiguity, statements of fact. Financial statements and statistical reports should be accurate, sufficiently detailed to give adequate information, and

simply formulated to be easily understandable. As a rule, questions of reporters in search of news should be welcomed and fully and frankly answered. Factual news is safer and much more to be desired than hearsay. Whenever possible, the information given should be in writing, both for the convenience of the reporters and to make sure that the information may be correctly given to the public.

Employee or Industrial Relations.—In the whole field of company relations, employee or industrial relations is probably the most important to the office manager. Through his employees he has a ready medium for expanding human relations beyond the doors of his company. Assuming that in a city of 50,000 population, some 200 work in his office, with an annual staff turnover of only 10% and assuming further that through each employee he has indirect contact with an average family of three other people, he has a potential goodwill field of some $220 \times 4 = 880$ persons, or 1.7% of the whole city.

In connection with office personnel, the office manager is usually responsible for :

1. Selection and placement
2. Training program
3. Supervision
4. Wage policies
5. Office working conditions

Each of these topics and the manner in which it influences public relations is discussed elsewhere in this book.

The manner in which the office manager discharges his personnel responsibilities has a tendency to set the internal personnel standard of his whole company. Externally, the satisfactory execution of his responsibilities to his employees tends to draw to his company a wealth of favorable public opinion.

CHAPTER 10

PLANS FOR EMPLOYEES' SECURITY

Security Plans

Basic Desire for Economic Security.—One of the most basic drives in a human being and one which is uppermost in his thinking today is the desire for security. It may be security from injury, want, unemployment, or old age dependency, or from many other circumstances or eventualities; but employees want security. Choice of an employer is sometimes influenced by the kinds of security in which the applicant is most interested.

Office workers as well as others have recognized their inability as individuals to cope successfully with fluctuations in economic conditions and have demanded protection against them. The office worker wants protection against hazardous working conditions, against conditions which partially destroy the purchasing value of his salary dollar, against old age dependency, against unemployment, and against forced or voluntary retirement without adequate means of support. Employees do not expect their employers to shoulder the full responsibility for providing these protections, but since they know full well that they cannot individually do it, they are keenly interested in the development of cooperative plans in which they and their employers can join. Employees feel, and employers know, that their participation in providing these protections is a sound business venture aside from any social obligations which may be involved. Employers, therefore, are coming rapidly to an acceptance of the soundness of programs which have these protections as their objectives and are seeking ways and means of developing and installing such programs in their companies.

Development of Security Plan.—Shortly after the turn of the present century, the subject of working conditions in American business establishments became a subject of deep concern to the public and, shortly thereafter, legislation designed to bring about improvement in these conditions began to appear upon the statutes of the various states. Employers, too, saw the need for voluntary corrective measures and progress got under way.

The employer cannot be saddled with the full responsibility for conditions which temporarily reduce the purchasing power of money, nor can he prevent this phenomenon from occurring. He can, however, aid in removing the causes, as well as in effecting a permanent cure if there be one and he can

do much to ameliorate the effects of these conditions in so far as his workers are concerned.

Perhaps the most important aspect of the employee security problem deals with full and continuous employment. The federal and state governments have enacted legislation designed to reduce the hardships of unemployment but have been unable to work out plans which would prevent unemployment. There is no known way to satisfactorily maintain full employment. Plans for delaying various types of business activity during periods of high level business until a recession comes have been suggested and to some extent used but are merely alleviatory. Other plans have been advanced such as guaranteed annual wages and a guaranteed number of weeks of work per year. These do not appear to be possible of wide application.

While many obstacles present themselves in an effort to deal with unemployment, it is certain that very little progress can be made toward reducing the incidence and severity of the disease without the wholehearted and intelligent cooperation of labor, government, and business, which so far has not materialized.

The following pages of this chapter deal with various security practices designed to contribute to the social and economic welfare of the workers and the public. Many plans are receiving an increasing amount of study and attention and their wider adoption is almost a certainty. They will be helpful although there is as yet no completely satisfactory answer to the problem of adequate security.

Insurance

Protection Through Monetary Benefits.—In the days before the industrial era there was no demand and no urgent need for employee security in the form of monetary benefits. In an agricultural economy the farm itself provided security for dependents and for old age, while the close family relationships which existed insured that in event of sickness or bereavement someone would care for those in distress. In this modern, highly industrialized age, the family depends for security, not on the product of the labor of its members, but upon wages with which to purchase the necessities of life. Hence, there has grown up in the minds of the workers an ever-increasing awareness of the need for provision against the major unpredictable hazards of life, which are:

1. Premature death of the breadwinner, leaving dependents with no means of support
2. Serious illness in the family
3. Poverty in old age
4. Unemployment

The enactment of the Social Security Act in 1937 was a recognition by government of the fact that provision of an income in old age is one of the great social problems of our time. There is other evidence of the effect of industrialization upon our social thinking in the development of laws providing workmen's compensation insurance and unemployment insurance, and more recently, the tremendous growth in plans which provide for hospital expenses. The most recent development has been the enactment of laws in one or two states requiring employers to provide compensation to employees in event of sickness.

Apart from these legislative developments, there has been, during the last 20 years, a growing awareness among farsighted employers that the voluntary provision by employers of reasonable benefits for the security of employees in event of adversity is just plain good business. More recently, the labor unions have become increasingly aware of these fundamental needs of their members and are demanding these benefits as a part of the collective bargaining contracts with employers.

This section will not attempt to describe the various benefits provided for employees by legislation, but will review briefly the various types of benefits voluntarily or jointly provided by employers. These may be described under six general headings:

1. Life insurance
2. Accident and health insurance
3. Hospital and surgical fees benefits
4. Reimbursement for medical expenses
5. Income in old age
6. Deferred profit-sharing plans

Life Insurance.—There are several methods of providing life insurance for employees. By far the most popular is group insurance on the term basis, under which the cost increases each year as the employee grows older. However, since the average age of a group of employees increases very slowly as the staff becomes mature, the cost of such coverage to the employer increases quite slowly with the years. Under these plans all employees are insured irrespective of health, provided at least 75% of the employees are covered, so as to give a fair average. Most states require a minimum of 50 employees. Such insurance usually ceases at age 65 or is rapidly reduced after that age to avoid the very heavy cost of carrying insurance at the high ages. The amount of coverage under modern plans approximates a year's salary and the employee usually pays \$.60 per month per \$1,000 toward the cost.

Another method which is becoming increasingly popular involves the purchase by the employee of small units of paid-up insurance each year, the employer purchasing an additional amount of term insurance. Under this

plan a young employee may expect to receive a fully paid life insurance policy at age 65 and the cost to the employer is more stable than under the more common term insurance plan.

Other methods include so-called group permanent contracts, under which a level premium, dependent on age at issue, is paid for a regular ordinary life contract, which includes cash values and other options available if premiums are discontinued. This type of contract is considerably more costly than group term plans.

In many cases life insurance coverage is combined with pension benefits under either "group permanent" contracts or regular individual life insurance contracts. Since the amount at risk under such contracts decreases as the pension reserve increases, the life insurance coverage can be purchased quite economically.

Accident and Health Insurance.—This insurance provides indemnity for loss of life, limb, sight, speech, hearing, or time resulting from accidental bodily injury, fatal or non-fatal. Under the health coverage, payment is made if sicknesses covered by the policy totally prevent the insured from doing work in his usual occupation, or if sickness causes the loss of major members, such as hands, feet, eyes, ears, etc. The coverage may be limited, or broad enough to include all major forms of illnesses and expenses incidental thereto.

This type of insurance, which is written on a group basis, provides weekly payments to employees when they are incapacitated for work by non-occupational diseases or accident. The benefits commence after a certain waiting period, which varies from three days to two weeks, and the income for any one illness or injury is usually payable for either 13 or 26 weeks, as selected. A few companies issue this coverage with a 52-week benefit. The benefits are graded according to earnings and may not exceed two-thirds of earnings, with a maximum of \$40 per week.

Hospital and Surgical Fees Benefits.—Hospital expense benefits may be obtained either through insurance companies or under the so-called Blue Cross plans. The benefits generally vary from \$3 to \$6 per day of confinement in the hospital and certain other benefits are provided toward covering the cost of anesthesia, laboratory tests, use of operating room, etc. The maximum period for which benefits are paid varies from 31 to 70 days. Surgical expense benefits are also obtainable from insurance companies, providing reimbursement for surgeon's fees at a specified rate according to the operation. The usual limit is \$150, but it is possible to purchase this coverage to provide a maximum of \$225. Both hospital and surgical expense benefits may also be provided for dependents of employees at an additional cost. These coverages have experienced a very rapid growth in recent years.

Reimbursement for Medical Expenses.—This type of coverage is a very recent development and is still in the experimental stage. Generally speaking, the benefits cover doctor's bills subject to a maximum of \$3 per each visit at the house, or \$2 for each visit at the doctor's office or the hospital, with a limit of \$150 for any period of disability. There are, however, considerable variations in the terms and benefits offered by the various insurance companies.

Retirement Plans.—Human efficiency decreases in old age, just as machinery wears out, or becomes obsolete, and it is only logical to provide for retirement of old employees. If employees are kept on the payroll instead of being retired, the employer loses money in the long run. The older people could be replaced by younger and more efficient people at lower salaries, thus improving the efficiency of the over-all operations. Retention of old employees results in slow promotion and loss of promising young employees, due to dissatisfaction. A sound retirement plan attracts a better type of employee and reduces turnover. If there is no funded plan it is impossible to collect contributions from the employees and unless the employer sets up a sound funded plan under which money is paid into an irrevocable trust for the benefit of employees, they feel no sense of security.

In this discussion reference is made only briefly to the "informal" type of retirement plan, under which there are no reserve funds, pensions being paid out of current income. Sometimes there is a fixed age for retirement and a definite scale of pensions, but usually there is neither, and the employees are retired at some arbitrary figure when the employer thinks it necessary. In short, the so-called "informal" plan is not a pension plan at all and from all points of view it is a very unsound and costly procedure.

Funded pension plans provide for a fixed scale of benefits, a definite retirement age, and a reserve fund calculated on a sound actuarial basis. The general objective is to build up, during the employee's working years, a fund sufficient to purchase an adequate life annuity at retirement age. This is an exceedingly complicated and technical subject and in the space here available it is impossible to do more than touch briefly upon some of the highlights. The subject may be considered under nine general headings.

1. Treasury approval
2. Eligibility rules
3. Retirement age
4. Contributory or non-contributory
5. Pension formulas
6. Form of pension
7. Vesting provisions
8. Methods of funding
9. Tax features

TREASURY APPROVAL.—Under the income tax laws there are provisions which make it highly desirable to have the plan approved by the Treasury Department, so as to enable the employer to obtain tax deductions in respect to his contributions to the plan, and the employee to obtain freedom from income tax, in respect to the employer's contributions. The laws contain very complicated provisions governing the terms, conditions, benefits, contributions, and methods of financing under approved plans which cannot be described here. Generally speaking, however, the rules proceed upon the principle that the plan must provide definite benefits under a sound plan which does not discriminate in favor of supervisory employees, stockholders, or highly paid employees, and the pension must be integrated with the benefits under the Social Security Act. There must be an irrevocable trust under which the employer cannot recapture any of the contributions made under the plan.

ELIGIBILITY RULES.—Under the law it is possible to require the employee to give up to five years of service and to have attained a certain age before he is eligible to join the plan. In industries where there is a high turnover, a waiting period of five years and a minimum age of 25 or 30 is often used, so as to avoid having the employer set aside funds for employees who are not permanent. In other cases a shorter period of eligibility is frequently employed. Sometimes only the salaried employees are covered, the wage and hour group being excluded. In other cases only those earning \$3,000 or more are covered in respect of their earnings over \$3,000, which are not covered under Social Security. However, the tendency today is to cover all employees under a formula which takes account of the Social Security benefits.

RETIREMENT AGE.—The most popular retirement age is 65, although many plans retire women at 60 and in certain types of industry both men and women retire at 60. When a plan is established the employees at ages over 60 are often retired five or ten years hence, or at an age such as 70, in order to cut down the cost of financing the plan. It is quite important to realize that a plan providing retirement at age 60 will cost as much as 50% more than one providing retirement at 65.

CONTRIBUTORY OR NON-CONTRIBUTORY.—Many plans are in existence under which the employer pays the entire cost. However, the tendency today is toward contributory plans. People seem to appreciate things for which they make a sacrifice more than they do things they get for nothing and a division of the burden gives the best guarantee for permanence of the plan. It is much better to have a contributory plan with really adequate pensions, than a non-contributory plan with modest or inadequate benefits. Since it is usual to return the employee's contributions upon severance, a contributory plan provides a systematic method of saving.

PENSION FORMULAS.—A pension plan which provides a retirement income, after allowing for Social Security, of 50% or more of salary, would be regarded as an adequate plan; 40% would be a moderate plan, while 30% would be a minimum, if not an inadequate, plan.

The benefits provided under the Social Security Act are a decreasing percentage of salary as the salary increases. For a salary of \$1,800 a year they are about 25% of salary; for \$3,000 a year—about 20%; for \$6,000 a year—about 10%, and so on. It is therefore necessary to fit the pension formula to these benefits.

There are two general types of pension formulas:

1. The flat percentage formula providing a pension of $x\%$ of salary irrespective of years of service, subject to reduction for employees hired late in life. This is a simple formula and provides an adequate pension for employees hired at middle and late ages, but if large numbers of such employees are hired, the result would be a very high cost.

2. The other type of formula gives credit for each year of service. At the date of establishment of the plan $\frac{1}{2}\%$ to 1% or more of current salary is given for each year of past service. The credit for future service is usually higher, ranging from 1% to 2% of average salary for each year of service and the formula is adjusted for Social Security by giving a lower percentage credit on the first \$3,000 of salary. The credit for past service is frequently limited to service after a certain age, such as 25 or 30, so as to cut down the cost. This type of formula rewards the employee who starts at a young age and stays with the company all his life, but it does not provide an adequate pension for an employee hired later in life.

FORM OF PENSION.—Under the old types of pension plan it was common practice to provide a pension which ceased upon the employee's death, even if this occurred soon after retirement. This type of benefit results in considerable dissatisfaction under contributory plans if death occurs before the employee has received annuity payments equal to his contributions. Furthermore, the employee is frequently survived by his wife, who upon his death after retirement may have no means of support. Nowadays it is usual to provide a pension which continues after death until the pension payments equal the employee's contributions and in many cases it continues for five or ten years after retirement. Most modern plans allow the employee to elect a reduced pension which is continued after his death, at the same or a lesser amount, to his wife during her lifetime.

VESTING PROVISIONS.—Under many of the old-established pension funds, if the employee left the company, even after a very long period of service, he forfeited all his rights except for any contributions he had made. Nowadays, it is customary to give the employee a vested interest in the portion of the pension purchased by the employer after a reasonable period of service,

such as 15 or 20 years, and attainment of a certain age, such as 45 or 50. These provisions vary quite widely according to the circumstances of the case and should be carefully designed to encourage employees to stay with the company without penalizing an employee who leaves after a long period of service.

METHODS OF FUNDING.—There is a great variety in the ways in which a pension plan can be funded. Many of these are highly technical and cannot be fully explained here. Frequently the best procedure may be a combination of two methods. In the case of a small group, say, less than a hundred employees, the soundest method is by means of life insurance contracts providing annuity benefits. Medium-sized groups may be financed by means of group annuities or the so-called group permanent contracts, which have been developed in recent years, while in the case of very large groups, the use of a self-administered plan, under which the pensions are paid out of a fund administered by a trust company is a further alternative. In many cases the liability for past service benefits turns out to be so high that it is not feasible to liquidate it by means of level annual payments, because this would involve a fixed commitment higher than the company feels it can safely undertake; in these cases the difficulty can be overcome by financing this liability under a fund into which the company pays, over a period of years, such amount as the company's earnings will permit, the minimum payment to the fund being the amount required to fund the pensions on those who retire each year. The future service benefits can be financed by any of the other methods referred to above.

Each of the methods mentioned, viz., individual life insurance contracts, group annuities, group permanent pension plans, and self-administered trusts, has its advantages and disadvantages, but the best method applicable to each case will depend partly upon the circumstances of the case and partly upon the company's opinion on such matters as the value of insurance company guarantees as to interest and mortality rates, type of administration required, investment risks, and so on.

If it is at all possible the plan should provide definite benefits. However, in some cases the nature of the business is such that there are wide fluctuations in earnings. If the company feels that it cannot safely undertake the fixed commitment required to finance an adequate pension plan it may be necessary to employ a fixed benefit pension plan providing a modest pension and to supplement this by means of a deferred profit-sharing plan. Into this the company pays a percentage of the profits which are accumulated to the retirement age to supplement the fixed benefit pension plan.

TAX FEATURES.—Government has recognized the social desirability of funded pension plans by providing valuable advantages under the income tax laws in the case of approved funded plans. This is true in Canada and

Great Britain, as well as in the United States. In the United States the employer may deduct from his taxable income the amount paid into an approved plan, subject to certain limits. For instance, the amount deductible for past service benefits is limited to 10% of the past service liability at the time of establishment of the plan. The employee is also accorded favorable treatment since the contributions made by the employer are not taxable income to the employee in the year they are paid. The benefits are not taxed to the employee until they are actually paid.

Profit-Sharing Plans.—The pioneer of profit sharing in America was Albert Gallatin, who introduced the system in his glass works in New Geneva, Pennsylvania, in 1794. Gallatin said, "The democratic principle upon which this nation was founded should not be restricted to the political processes, but should be applied to the industrial operation."

Today there are two types of profit-sharing plans in general use:

1. The cash distribution type
2. The deferred distribution type, under which the funds are accumulated in a trust

CASH DISTRIBUTION TYPE.—The experience with the first type, under which a share of profits is paid to the employees each year in cash, has not been very satisfactory in either the United States or Great Britain, although there are many examples of successful plans. The main reason for dissatisfaction with these plans is the failure of the employees to understand the effect upon profits of varying economic conditions. Resentment arises when the distribution is reduced or when there is none at all. These cash distribution plans suffer from two other major disadvantages. Firstly, the sum received by the employee is subject to income tax. Secondly, a cash bonus is very quickly dissipated. In a survey among 700 employees made by the U. S. Senate Finance Committee it transpired that 83% of the employees saved no part of the cash distribution; 14% had saved part, and only 3% saved all of it.

DEFERRED DISTRIBUTION TYPE.—The second type of profit-sharing plan involves the payment of the employee's share into a trust under which the funds are invested by the trustee and accumulated for disbursement at a later date. These plans have been highly successful. Under the income tax law an approved plan must set forth a definite formula for determining the amount of profits to be shared and also a definite formula for distributing the profits to be shared among the employees. The amount of profits shared may not exceed 15% of the earnings of the participating employees and there are many technical requirements in the law governing the rules for eligibility to participate in the plan. In defining the distributable profit, allowance may be made for reserves of a definite, mathematically determined

amount, but not for reserves, the amount of which depends on the discretion of the company.

Various formulas are used in dividing the distributable profits among the employees. The simplest formula divides the profits in the ratio of each employee's salary to the total salaries of all participating employees. Another simple formula pays each employee a fixed percentage of his salary. A great variety of formulas can be devised to take account of years of service, but the Treasury Department regulations are such that it is very difficult to give much weight to length of service without producing a result which discriminates in favor of the highly paid employees. A plan which so discriminates will not be approved. For this reason it is impossible to devise an adequate solution to the pension problem by means of a profit-sharing plan. However, if the past service liability is handled by a separate pension plan, the obligation for future service pension benefits can sometimes be financed by means of a deferred profit-sharing plan. Another possibility is the combination of a modest pension for both past and future service under a definite benefit pension plan, supplemented by a profit-sharing fund, which may be used to purchase an additional pension at retirement. This type of combined plan is sometimes used in the case of companies where the profits show wide fluctuations, because it results in a lower fixed annual commitment.

Some profit-sharing plans provide that part of the profit allocated to each employee shall be used to purchase life insurance policies so as to provide an adequate death benefit. Sometimes the plan provides that the profit-sharing fund shall be used to change the insurance contracts to annuities at the retirement date.

Sometimes the accumulated fund to the credit of the employee at retirement age is used to purchase an annuity. However, profit-sharing plans do not provide a satisfactory solution to the pension problem. In the first place, since the profits will vary from year to year the employee never knows precisely how much pension he may receive. In the second place, it is not possible to provide anything like an adequate pension for employees at the older age when the plan is installed, because there is not sufficient time to accumulate a large enough fund at retirement age.

Under an approved plan it must be impossible for any benefits to accrue to the employer. The funds of the trust must be distributed according to definite rules at a definite date. For instance, the fund may be paid after a specified number of years, either in a single sum, or in annual installments; or the fund may be paid upon attainment of a specified age either in a lump sum, in annual installments, or by the purchase of a life annuity.

The amounts paid into an approved profit-sharing trust are deductible from the taxable income of the employer and they are not taxable income to the employee until the time the benefits are actually paid.

The following statement by a worker in a Connecticut textile mill is significant in these days of labor strife: "The cure for Communism is to allow labor fair treatment and a share in what it earns. It can be laid down as a law of human nature that nobody gives up a good profit-sharing job to join a revolution."

Credit Unions

Nature and Advantages of Credit Unions.—A credit union is a co-operative savings and loan organization operated for the benefit of its members. It is a legal entity operating under charter granted by the state or federal government. It may be organized by any group having a common bond of association, most usually employees working for the same employer, but it could be formed by members of a labor union, church, fraternal order, etc. Participation is encouraged by having low par value shares, for example \$5. Loans are made to members on the basis of need and not in relation to share holdings.

From the employee's point of view the credit union is a means of encouraging thrift and combating usury. It encourages a habit of regular systematic savings. Accumulated savings must be put to work in order to provide income, which is accomplished by making loans to members for any provident or productive purpose, such as paying off old bills, payment of taxes, medical bills, funeral expenses, home repairs, vacation, education, purchasing for cash rather than on installments, etc. By funds made available to them through a credit union, employees are spared the embarrassment and high costs which accompany the making of loans through lending agencies where they are total strangers. The organization also provides an outlet for the creative ability of its members. When the accumulation of savings exceeds the outstanding loans, the members are inspired to find productive purposes for which the funds may be loaned.

The personal well-being and peace of mind of every employee are of considerable importance to employers. An employee will not do his or her best work if worried about financial matters or if in the habit of obtaining loans from high-rate money-lending agencies. It is customary, therefore, for the employer to permit the officers and directors of a credit union to devote a reasonable amount of time to the activities of the association during regular working hours. The cost of this time is well repaid through a more competent and efficient personnel.

Security of Funds.—The financial soundness of the credit union is safeguarded by incorporation under state or federal laws, by a supervisory committee which periodically inspects the books independently of the annual examination of the books by a state or federal examiner, and by bonding the treasurer and all other officers who handle money. Loans to directors,

officers, and committee members are generally prohibited. Security is also provided through regulations governing the use of surplus funds over and above those needed to make loans to members; for instance, federal credit unions are restricted in their investments to United States Government securities, securities guaranteed by the government, loans to other credit unions, or shares of federal savings and loan associations. In many states, investments are similarly restricted in accordance with the state banking laws. Credit union experience reveals very nominal losses; for instance, losses from bad loans of federal credit unions, from 1934 through 1940 were .07 of 1% of the amount loaned.

How to Organize and Operate a Credit Union.—There are in excess of 10,000 credit unions in the United States. About half of these are chartered under federal laws; the remainder are under the laws of various states. A total of 42 states now have credit union legislation. There is little choice between operation under state or federal charter. Obviously, credit unions must operate under federal charter in the few states having no credit union legislation. In those states where a choice is to be had between state or federal charter, the group should investigate both charters to determine which will best fit their needs. A copy of the state law can be secured from the state banking commissioner or secretary of state. Information regarding federal credit unions may be obtained from the Federal Deposit Insurance Corporation in Washington, D. C. Any interested group may obtain additional information and assistance from the Credit Union National Association, Madison, Wisconsin. The association will provide assistance through field men upon request. Subscriptions to the association's official publication, "The Bridge," may be forwarded to the same address.

The usual rule is that seven persons who are residents of the state may petition for a charter. If the petition is granted, the officers and the board of directors are elected, by-laws are drawn up and submitted to the state or federal authority for approval. As soon as the bylaws are approved, the credit union is given a charter to do business.

A progressive management should take steps to encourage the formation of a credit union if there is a need for it. However, a credit union should be organized only to fulfill a recognized need.

Management should not try to run the affairs of the credit union; the plan will work more successfully under the principle of self-management by employees.

Any interested group may obtain suggested drafts of articles of incorporation and bylaws from the sources previously mentioned and may then make changes therein to suit their individual needs. An organization meeting should then be held at which the plans should be discussed in detail. A copy of the final draft of articles of incorporation and bylaws should then

be submitted to the state or federal supervisory department for approval. A second meeting is then required to adopt the approved bylaws and to sign the articles of incorporation. The directors and committees are then selected and the organization is ready to function.

Functioning of a Credit Union.—Members of the credit union elect the directors. The directors elect their own officers. The usual officers include a president, vice president, secretary, and treasurer. The important committees are, the supervisory committee, which audits the books and supervises all activities of the officers and other committees, and the credit committee which passes on loans.

All members of the group have equal rights. The organization is operated like a club—one member, one vote. Members of immediate families are frequently authorized to participate. It is customary to establish maximum deposits, for instance, \$500 to \$1,000, for each member, as well as to establish maximums for loans. Small loans, for instance, up to \$100, are frequently made without security, whereas larger loans, as high as \$2,000, are commonly made with security. Bylaws vary according to the requirements of the individual group.

Credit union earnings are used to defray operating expenses which usually are nominal, to set up a reserve fund for uncollectible loans, and to pay dividends on savings accounts. Interest rates are never higher than 1% per month on the unpaid balance of a loan, while commercial loan companies may charge as high as 3½% per month. Thus, a credit union loan of \$100 paid off in ten months, would cost \$5.50 in interest, while the same loan from a loan company could cost as much as \$19.25. Repayments of loans, as well as payment for ownership shares, are most generally arranged through payroll deduction.

Savings and Loans

Features of the Plans.—Most savings and loan plans are organized, managed, and operated by employees as beneficial associations, and are chartered to operate as private banks under state and federal banking laws.

Officers of the association consist of a president, vice-president, secretary, assistant secretary, treasurer, and assistant treasurer. These officers are nominated and elected annually. Nominations are held one month prior to election. All officers serve without compensation and are permitted to use work time by the company when serving in their respective capacities. Without exception these plans are sponsored by the companies, which cooperate in organization and administration. A board of directors (one from each department of the company), who must be members of the association, are nominated and elected each year at the regular meeting. Directors so elected serve for one year or until their successors are elected.

After one month of employment, or the period of time elapsing before an employee is considered to be permanent, application for participation in the savings and loan plan is invited. Deposits are made by payroll deduction and range from a minimum of \$1 to a maximum of \$100 a month, on which the legal rate of interest is credited to the employee's account at specific intervals.

Application of Employee.—The application of the employee is sent to the treasurer's department of the company where a ledger card and deposit book are originated. The treasurer's department prepares a list of employees' names, and the amounts to be deducted and credited as savings. This list is forwarded to the payroll section where it is executed and then returned to the treasurer's department. The treasurer's department prepares a check covering the total amount deducted for savings and deposits it in the bank where the fund is located. The employee, even though having designated only the amount of \$5 to be deducted and credited as savings each month, has the privilege of making additional deposits during the month, up to a total amount of \$100. As most deposits are made through the payroll deduction plan employees are requested to present their deposit books, for balancing and the adding of interest, at stated intervals.

Withdrawals and Loans.—Withdrawals of not less than \$1 nor more than \$10 may be made at any time and without prior notice. Withdrawals over \$10 usually require two or three days' written notice except in cases of dire emergency. Until recent years many plans of this type included a loan feature which permitted the employee to borrow amounts up to 50% over and above the accumulated figure in the individual's savings account, repayable in installments through the payroll deduction plan, so that the loan would be completed in a maximum of eighteen months. Loans were made under this plan for the payment of medical and hospital expenses, education, purchase of homes and furniture, and other worthy causes. Interest rates on loans were much lower than could be obtained in the financial market, resulting in wide use of this method of borrowing. Gradually this type of loan plan defeated the savings feature, in that individuals were constantly in debt and borrowing for reasons other than stated, and a larger percentage of employees were repaying loans rather than accumulating savings. This condition caused the rescinding, in most cases, of a combination saving and loan plan.

The saving plan, through the payroll deduction plan, is kept intact. A loan plan is arranged with a commercial bank whereby the employee, when in need of additional funds, goes directly to the bank and makes application for a loan. No investigation of the employee is made other than a call to the applicant's place of employment, verifying rate of compensation, length of service, and any other pertinent data held in the personnel files of the

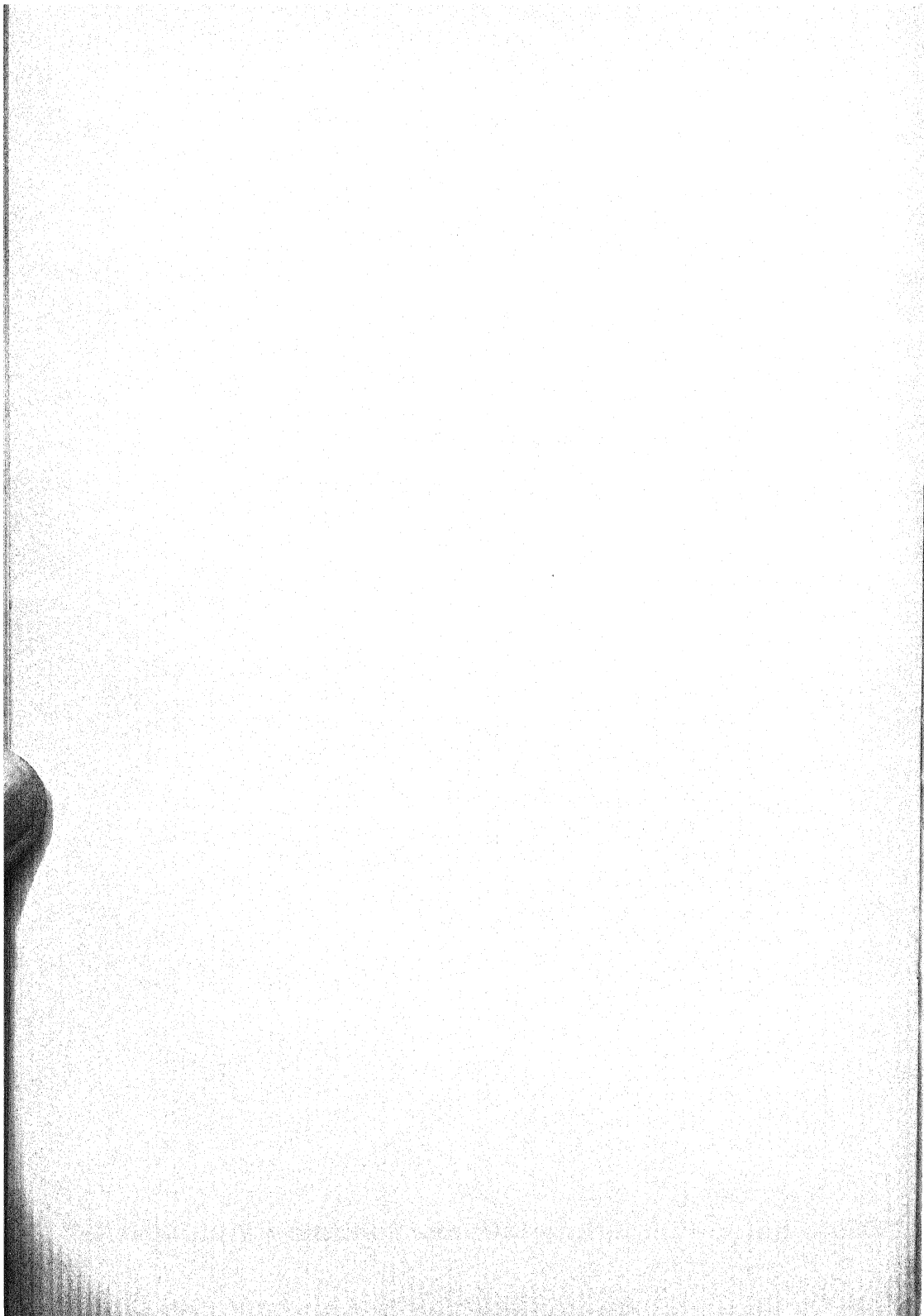
company. On the strength of this information the loan is completed or refused. If granted, a check is mailed to the applicant in the amount requested, less the previously computed interest. On an agreed date in advance of each pay period a master list, showing only the name of the employee and the amount to be deducted, is forwarded to the treasurer's department of the company. This list in turn goes to the payroll section, is executed and returned to the treasurer's department. A check for the total amount as shown by the bank list is prepared and deposited in the bank, along with a duplicate list of individuals' names. The bank credits each account with the amount deducted and the transaction is completed. A \$100 loan under this plan would be completed as follows:

\$100	Amount of loan granted
4	Interest at 4% for 12 months
<hr/>	
\$ 96	Amount of check, mailed by bank to employee

At each pay period thereafter, up to a maximum of eighteen months, the appropriate amount as shown by the list sent on by the bank is deducted and forwarded by the company. The only responsibility the company assumes under this plan is the deduction each pay period and the forwarding of this amount to the bank. The granting of the loan and the method of repayment are the responsibility of the bank, and this information is confidential between the borrower (employee) and the lender (commercial bank). The company, by making this plan possible, continues to take an active part in the welfare of the employee, while the employee has the benefit of a quick, efficient, low interest loan service along with a convenient repayment method through the payroll deduction system.

PART III

THE PHYSICAL ELEMENT



CHAPTER 11

OFFICE ENVIRONMENT

Office Location and Its Setting

Selecting a Suitable Area.—Careful consideration should be given to selecting the proper location for an office, for it is the focal point through which the business activities of all the departments of an organization channel. It is of first importance to locate in the area where the greatest advantages exist in regard to serving both customers or clients and the manufacturing plant, if the company is engaged in industry. Lack of foresight in selection of a location means necessarily higher operating costs, and perhaps moving at some later date.

An analysis should be made of the type and character of the business and an area selected that will contribute to the accomplishment of the objective for which the company is organized. The nature of the business itself dictates, to a great extent, the specifications to which a location should conform, but considerable importance attaches also to the characteristics of the community in which it may be set. The probable expansion of nearby businesses and the development of new ones are factors calling for consideration.

URBAN OR SUBURBAN SITE.—In deciding whether an urban or a suburban office site would be better, the nature of the business is a determining factor. It is preferable to be situated as closely as possible to organizations with which the greatest volume of business is done.

LARGE OR SMALL CITY.—The large city will usually offer much more opportunity than the small city for closer contacts with other businesses. In many instances this one point will determine the general location.

An investigation should be made to see whether a city under consideration will be in a position to offer the necessary number and type of employees required for the work. It is reasonable to assume that in many cases a smaller city may be unable to do this. Although the large city will offer better sources of personnel, additional expense will be incurred because of the probable higher rate of turnover among city workers. Wages and salaries, likewise, will have to be proportionately higher because of the higher cost of living.

The location of an office must be readily accessible for employees, customers, and patrons. Some offices will need to favor the customer or patron, whereas others will be situated so as to be more convenient to the employees. Nearness to service, communication, and transportation facilities is highly important because of the extensive use of these services by office workers and visitors.

The cost of land in the large city is very high and, to keep costs down, it may be necessary to buy only a small plot and plan for a high, multi-story building instead of a building of only two or three floors, such as would be constructed on lower-priced ground. If it is desired to provide for normal expansion over several years, the building may be completed to its ultimate anticipated height and floors rented until the additional space is needed.

The size and shape of the plot are important. Room for horizontal expansion may be necessary, so the plot should be amply large and preferably square or rectangular in shape to permit of additions to the building. The size of the organization and the amount of space required for efficient handling of work are determining factors in selecting the site.

Likewise, a check on real estate values and on the tax rate is important. What is the present reputation of the community in which the office may be located? Does the trend, as shown by the past few years, indicate that the community is changing in type? What are the possibilities of sharp decreases in future real estate values of land and building?

The value of an office location from the standpoint of advertisement cannot be overlooked. It may be financially impossible to secure comparable advertising value through other mediums.

It is desirable to locate on a street where the grade adjacent to the office site is comparatively level. Wide streets and sidewalks are often essentials so that congestion of foot and vehicular traffic will not interrupt or delay people from getting in and out of the building.

A thorough check of city building laws should be made. It is often found that large cities have laws which are more restrictive than those in smaller towns. There may be even wider differences between the urban and suburban areas. Zoning regulations in many cities govern possible office sites.

Although usually a minor point, adequate banking and investment facilities must be present.

OFFICE ADJACENT TO FACTORY.—If the office is connected with an industry and is to be adjacent to the factory, it will usually be in a suburban area. One of the most important advantages of such a setup is the accessibility between the plant and office. Such accessibility reduces the cost of contacts between office and plant and facilitates the handling of office-factory

communications. Usually, also, this combination allows for lower building or rental costs.

While there are many advantages obtained from access to the plant, it is often difficult to furnish sufficient transportation facilities to the suburban location for employees and customer. Under such circumstances wage rates may have to be somewhat higher than the average in the community to get office workers to take positions, especially highly trained personnel, and fewer customers may visit the offices, which is a disadvantage if sales are made to many such visitors.

Physical factors, such as dirt, noise, vibrations, offensive odors, and the like, will be harder to control. If the office is very far out of town there may be increased difficulty of securing prompt repair service for office equipment.

OFFICE IN SAME CITY BUT NOT AT FACTORY.—By locating the office in the same city as the plant, but in the business center instead of the factory area, the advantages of customer contact, convenience for employees, and sometimes a better building and better quarters may be secured, but direct plant contacts will be sacrificed. It should be determined whether the greater gain will be made by favoring the patrons and employees as to office location or the office-factory communications. Advertising possibilities from public contacts should gain under such a plan.

OFFICE IN ANOTHER CITY.—If the office were located in another city or area for closer contact with customers, convenience of salesmen, closer proximity to a source of capable personnel, and more pretentious quarters, the advantages thus gained might well outweigh those of immediate plant contact.

Owning the Office Building.—The quickest way to acquire ownership is to purchase a building which has already been erected, but such a plan has its drawbacks. A large investment may be made without the possibility of making a layout suitable for the expeditious handling of work. Also, future expansion may not be easy because of lack of ground area, difficulty of adding stories without strengthening the building structure, and impossibility of acquiring adjacent property except at a high cost.

It is unusual to find a building which will suit all the needs of an office. Costly remodeling is necessary in a majority of cases. Partial obsolescence of the building itself, as well as deterioration of the surrounding district, are other factors to be considered. The reputation of the building owned may materially influence the future success of the company owning it.

In purchasing a building, likewise, care should be taken to plan for future development. Any space not to be occupied by the buyer may be leased to others if the leases are dated to expire before the need for expansion of

the company's quarters is too pressing. This factor brings up the question of whether or not it is desirable to have tenants and to assume the cares and responsibilities of owning an office structure, part of which is rented.

Amortization on an older building, plus taxes and upkeep, will amount to a considerable sum and is another factor to be carefully weighed. The question of buying an existing property will depend to a considerable extent, therefore, upon the nature and condition of any buildings available and the urgency of the need to acquire quarters, but it is often better to rent temporarily rather than to buy, so that a new building may be constructed if an existing property of suitable kind cannot be secured in a reasonable time at a fair price.

ERECTING A NEW BUILDING.—If a decision to build is reached, additional factors must be checked. The bearing power of the soil, extent of the rock floor, possible existence of subsurface water, capacity of neighboring sewers, the amount of ground area required, and the cost of land, all need careful attention. A new building can incorporate the latest developments in fire-resistant construction and fire protection measures which have progressed far in recent years. An architecturally attractive new building, moreover, has tremendous advertising value.

Expansion needs can be planned to cover a long time in advance and the office layout worked out exactly as desired to handle the work in the most rapid and efficient manner.

Renting Office Space.—When it is necessary or advisable to rent office space because it is not feasible to buy or build, one of the first factors for consideration is the rental cost. Is the cost reasonable so that the proposed office site is financially satisfactory? Is the rental cost fair as measured by the various site advantages and disadvantages? How adaptable is the required space to the flow of work? If it is not readily adaptable, the costs of office operation will be high through the succeeding years unless the building is altered, perhaps at considerable expense.

The reputation of the building is of primary concern, as well as the types of businesses engaged in by the other tenants. It would not be best to rent office space in a building that predominately housed small manufacturing concerns.

Are the building and neighborhood likely to deteriorate considerably during the coming few years, thus necessitating a costly change in the office site? What opportunity is there for expansion? It would be well to make arrangements in the beginning for more area when normal expansion might be expected within a reasonable period to necessitate the renting of additional space.

The cleanliness of the building, as well as the adequacy of the service facilities, such as elevators and maintenance, should not be minimized.

Whether the upper or lower floors should be selected for the office, if a choice is possible, will depend on the type of office to be set up and the heights of the surrounding buildings. A north or south exposure is often desirable, if it can be obtained.

The fact that there need be no large amount of capital outlay when space is rented is probably the most important advantage in becoming a tenant. Renting also allows for a future change of site and freedom from the maintenance and care of a building.

On the other hand, where alterations or the provision of certain service facilities are needed, it is often necessary to rely on the promises of the owner, which may not always be fulfilled. Moreover, the probability of securing a desirable layout is not too good.

Like goodwill, a desirable location for an office is an asset to any business, and a wise choice will help to assure satisfied business personnel and favorable impressions on customers.

Building Characteristics

General Construction Features.—Appearance and design of the building in which the office is housed are important from the standpoint of owner's pride and public reaction, but utility, flexibility, and maintenance are the fundamental operating factors to be taken into account and must be carefully considered in the planning. A building with few columns is most desirable because it provides large, open operating areas which may be laid out in the manner best suited to provide maximum facilities for the orderly flow of work and minimum interference with its performance.

EXTERIOR TREATMENT.—The type of material depends upon the building appropriation, owner's preference, and availability of materials. Brick, limestone, and concrete are most commonly used. Many buildings have a granite or marble facing at the lower levels.

Roof areas customarily are occupied by the housings for exhaust systems, elevator drives, and other mechanical facilities, but more attention is being given, especially in metropolitan centers, to using at least part of the roof for employees' recreational facilities, games, and sun decks.

FLOOR LOADS.—A suitable floor load is 100 lb. per sq. ft. This strength is more than necessary for personnel, but is necessary to sustain heavy office machinery, safes, and storage of materials. By providing floors of the same strength throughout the whole building, changes in layout can be made later on without special consideration to weights of safes, files, stored supplies, office machinery, and other facilities.

ELEVATORS.—The height of the building and the number of occupants determine the elevator requirements. All such installations should be put

in under the sound advice of elevator experts. Once the building is completed, it is expensive to install additional elevator equipment or make changes. Allowance should be made in the beginning for the maximum anticipated expansion for passenger and freight service.

Automatic elevators, those operated by the passengers, are more costly to install but less expensive to operate. If the building is not too high, and interfloor traffic is light, automatic elevators are quite suitable. Even with attendant-operated elevators, it is advisable to equip one car with the automatic feature for use outside of working hours.

If the building is not over six stories in height, and there is considerable inter-floor traffic, consideration nowadays should be given to escalators.

A freight elevator of ample size and load-carrying capacity for moving furniture, building materials, displays, and other large and heavy objects is highly desirable for every office building.

FLOORS.—For general offices and corridors asphalt tile, rubber tile, or linoleum is suitable. Either terrazzo or travertine is generally used in entranceways and lobbies. Private offices can be made more attractive and quiet by rugs.

Under the floors there should be conduit, at six-foot spacing or less, for carrying electrical and telephone wiring. While this conduit is expensive to install, it eliminates the future costs of drilling or channeling into the floor for these services.

SUSPENDED CEILINGS.—There is a growing tendency to enclose overhead ducts, piping, sprinklers, etc. with a suspended ceiling, usually of a sound-absorbing material. Removable slabs should be spaced at regular intervals to enable the enclosed facilities to be reached.

PARTITIONS.—For private offices and corridors it is desirable to use metal or composition partitions, which are supplied in standard, sound-proofed sections. These can be removed or erected very quickly and inexpensively. Masonry partitions are usually required by law for fire walls, elevator hatchways, and stairways, but they should be avoided for general office use when there is any likelihood of future changes.

When masonry partitions are required, such as for stairways or outside walls, a dado of glazed tile or metal or composition is very attractive and economical in maintenance.

WINDOWS.—A number of windowless buildings have been constructed on the theory of better control of temperature and lighting conditions and less construction cost. However, employees generally prefer to be able to see outside, and a large proportion of new buildings provide ample window area. Special glass with a lower rate of heat conductivity than ordinary window glass is now available.

It is desirable to design the windows for cleaning from inside rather than from a scaffold or outside ledge, but most windows are still of the large double-hung type, or stationary type with pivoted sections, both more easily cleaned from outside. Fire regulations in large cities may call for the latter type of steel frames on sides where adjacent buildings leave little space between.

Service Features.—A highly important factor in the successful operation of an office is the providing of excellent and well-maintained service features for the comfort and convenience of employees and customers.

LOCKER AND TOILET ROOMS.—These facilities should be located on each floor, preferably in an interior but central location. Careful attention should be given to the layout and arrangement of mirrors. Proper methods for this purpose are given in a report by the Policyholders Service Bureau of the Metropolitan Life Insurance Company.

GAS, ELECTRIC AND STEAM SERVICE.—Competent engineers should investigate these services. Gas and electric service is usually purchased from a utility. But it is well to consider buying steam from the utility also, if a central heating system extends through the area, thus saving the space, labor and upkeep required by a heating plant.

VAULTS AND STORAGE.—Almost every office requires some vault and storage space. It is usually better to provide the storage space at ground levels, where working space is less desirable and also convenient to delivery facilities, or in the basement if served by a freight elevator and convenient of access.

The amount of vault space depends upon the nature of the work, and the necessity of keeping records in a fireproof room. Some companies have found it advantageous to provide a central vault on each floor, perhaps in a special fireproof vault stack running up through the successive floors, rather than individual safes at scattered locations.

CONFERENCE ROOM.—A large, well-ventilated, and comfortable room is desirable for holding meetings and conferences of all types. Provision should be made for blackboards, displays, and moving pictures. Some companies have found it advantageous to provide a large, all-purpose hall for these facilities which can be used also for employees' recreational activities.

RECEPTION ROOM.—An attractive lobby and good facilities for welcoming visitors are essential. The architectural treatment will vary according to company preferences and the kind of impression it is desired to make upon clients and other callers, but provision should be made for at least a reception desk, sufficient comfortable chairs or settees, pleasing decorations, and perhaps a table with reading matter available for visitors who have to

wait to see the one on whom they are calling. Visitors get their first and sometimes lasting impression of a company by the reception room and the method of reception.

As an auxiliary to the reception room, many companies provide facilities for displaying products or featuring information of their services, or supplying information about the organization itself.

MAINTENANCE AIDS.—There are other facilities which should be considered at the time of building and which usually result in lower maintenance costs afterwards. Among these are:

1. A closet on each floor, containing a slop sink and facilities for keeping janitors' supplies and equipment.
2. A central vacuum cleaning system.
3. A chute for waste paper and one for laundry disposal.
4. Pipe shaft with space for expansion as facilities multiply.
5. A small but central location where pay telephone stations and candy and soft drink vending machines may be located.

Constructing the Office Building

Fundamentals in Planning the Building.—Elements of importance to the office, beyond the normal considerations in the construction of a new office building, are planned flexibility of layout, adequate building maintenance conditions, and provision for preplanned growth.

The amount of window office space, general office space, and storage space required for present and foreseeable expansion of an organization and the typical architectural and mechanical features of a building are usually planned by an architect who is experienced in office layout requirements, or preferably by an architect and an office layout consultant working in collaboration. These men are the interpreters of the problems of the office; they work out the solution and supervise the work to completion. In many instances they are also retained to advise on problems when preplanned growth is to be undertaken. This relationship may extend over a period of many years, if not indefinitely.

A careful physical survey of the site should be made, with special attention to construction and engineering factors. The survey should include such things as test borings of the soil, analysis of electric, steam, gas, water, sewers, telephone, roads, sidewalks, and other services and facilities; and municipal laws placing limitations on the layout and use of the property, as well as the local zoning and building laws.

The architect should be given a free hand in investigating the conditions, and a check should be made with him to see that he makes these investigations. He should be given a free hand also in the selection of any electrical,

plumbing, heating, or structural engineers and any other consultants whom he may deem it necessary to call on in planning and constructing the office building.

When plans and specifications have been well drawn up, bids should be secured on the construction. The contractor whose bid meets all the requirements, whose reputation for performance is high, and whose price is lowest should usually be given the contract. The architect's and the owner's representative should be on the premises to check the construction as it progresses.

Construction Factors.—The more important factors in the construction of an office building with which the owner should concern himself are as follows:

Number of Floors. Where the size of the property does not limit the areas of floors, and the height of the building is to be no more than five floors, horizontal distances should be limited to 200 linear ft. and the height from floor to floor should be 15 ft.

Type of Construction. Considering the constant changing of office layouts and the use made nowadays of large office machines, large files and safes, and other heavy equipment, it is highly advisable to adopt fire-resistant steel frame or reinforced concrete construction for modern office buildings.

Shape. Since the office is a combination of general working spaces, usually with fairly ample window area and storage space, the shape is

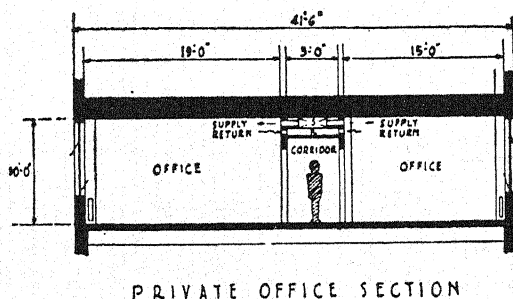
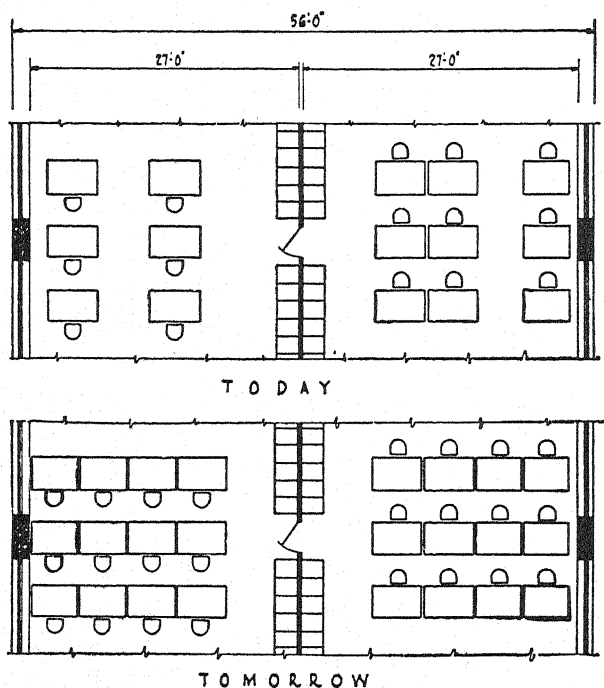


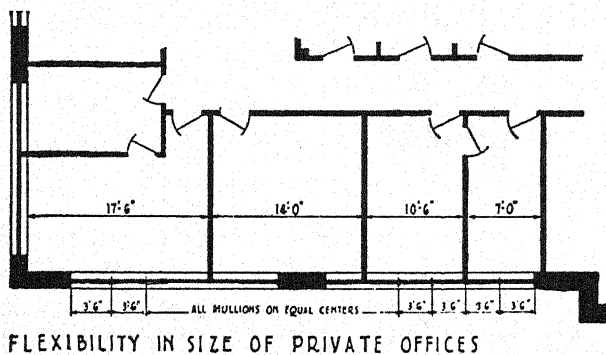
Figure 44. Window Office Space Section—a corridor with office space on both sides

usually evolved from the requirements or the limitations of the site, or determined by an imposed design. The office functions to be provided for will influence the decision as to the shape of the building. As a general practice (1) adequate and satisfactory storage space should be provided in the basement, (2) the need for ample office window area can be met by having offices on both sides of the building with a corridor down the middle (see



FUTURE EXPANSION IN GENERAL OFFICE SPACE

Figure 45. General Office Space—27' 0" distances between column centers



FLEXIBILITY IN SIZE OF PRIVATE OFFICES

Figure 46. Private Office Space—flexibility through window mullions 3' 6" on centers to take partitions

Figure 44), and (3) general office space should be laid out in long beam-span units (see Figure 45).

Orientation. The private offices should face north, the source of the most uniform all-day light, and the general offices south.

Flexibility. Window mullions in *private* office areas should be planned on 3 ft., 6 in. centers in order to be able to build 7 ft.; 10 ft., 6 in.; 14 ft.; 17 ft., 6 in.; or 21 ft. dimensioned offices (Figure 46). Column spacings should be planned on 27 ft. centers in order to provide clear *general* office areas for proper planning of office layouts (Figure 45).

Expansion. Foreseeable expansion in *private* offices can be provided for by constructing spare offices providing conference rooms and planning so

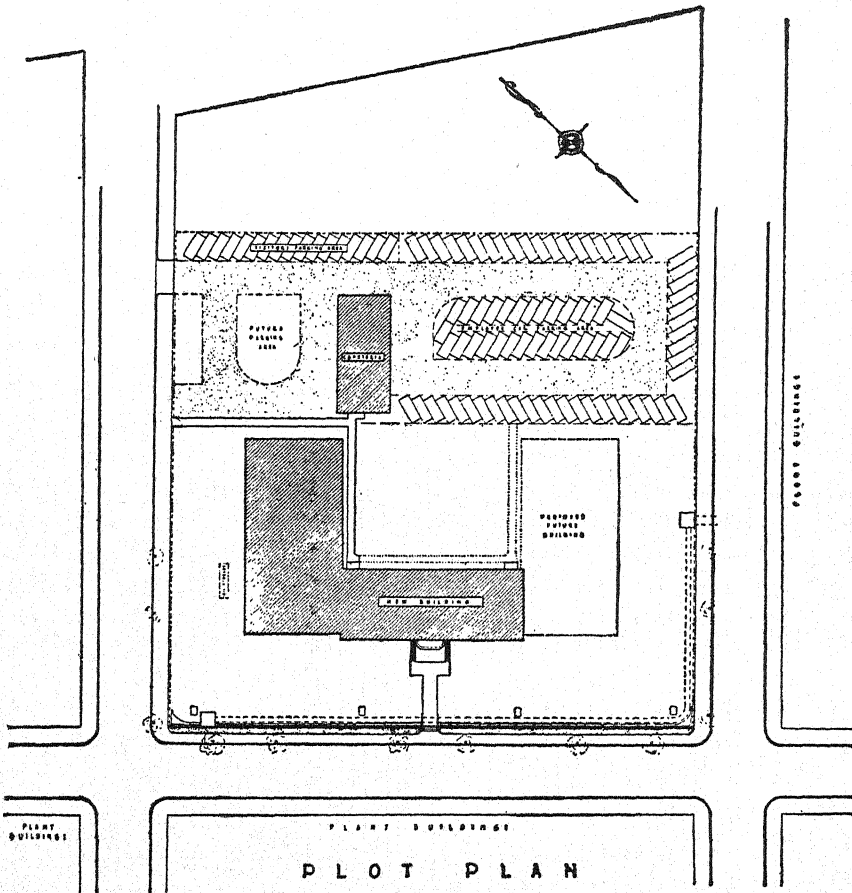


Figure 47. Plot Plan—preplanned growth of a building on the side grounds

that the size of existing offices can be cut as new ones are needed. Foreseeable expansion in *general* offices can be provided for by constructing open office areas of larger capacity than currently needed, to satisfy future expansion. This space can be currently used by more generous space allowances in the existing layout (Figure 45). Pre-planned growth of a building can be provided for by planning for additions on the site (see Figure 47) or by adding additional floors to a building. Often a building is purposely constructed sufficiently large to satisfy future expansion and the extra space is temporarily rented on short-term leases.

Mechanical Facilities. Electric light and power, heating, air conditioning, plumbing, and special devices (e.g., under-floor ducts, intercommunication lines) comprise the mechanical facilities of an office building. Spare service facilities should be provided for possible future adaptation or expansion of facilities as part of any pre-planned building growth program.

Services. Eating, car parking, recreation, rest rooms, and similar employee service facilities should be provided for in the original planning. Too often have these services been forgotten and then added later at the sacrifice of valuable office space.

Maintenance. Provision should be made for locker rooms, adequate storage space for cleaning supplies, and access to mechanical service facilities. These facilities should be coordinated with maintenance requirements in the original planning.

Design. The building should be designed and constructed around the kind of layout necessary for straight-line, efficient flow of work. The functional plan of an office building as a working machine should take precedence over traditional architectural period designs, and conventional construction practices, because lack of attention to proper layout of equipment and work areas and to direct flow of work will impose a continual excess cost on office operations. Employees will be compelled to walk long distances in doing their work and the distractions of such traffic will still further hamper the performance of jobs.

Decoration. Landscaping, sculpture, painting, light, and color should complement the architecture of the office building because they reflect the character of the organization and its management, and have a constructive effect on employees.

Atmosphere. Interior atmosphere should be businesslike yet comfortable. This result may be achieved through proper use of form, color, lighting, and well-planned offices and accessories.

Building Maintenance and Operation

Janitor Service.—Janitor work is not unskilled labor. It is a semi-skilled trade requiring knowledge of maintenance methods for all types of floors, walls, and metals; a working familiarity with the uses and chemical reactions of sanitary products, waxes, cleaners, insecticides, and disinfectants; the ability to operate fairly complicated cleaning equipment; and the observance of safety precautions.

Satisfactory performance of janitor services in a large building calls for a large volume of work and justifies the installation of training programs, employment of competent supervisory and technical skills, development of specialization, and the purchase of efficient cleaning equipment. Unless the company owns and operates the building, it is usually desirable to have janitor services provided by the landlord or building operating agent.

SERVICE IN RENTED OFFICES.—A wide range of plans exists for the furnishing of janitor services in rented space and the terms are written in the lease. In certain office buildings, the occupants must furnish their own cleaning facilities in rest rooms, corridors, and other public areas. In others, a sliding rent scale exists which varies according to services furnished. Under any of these plans, the office manager is normally responsible for securing contract performance by the landlord. He should analyze the janitor needs of his organization and should see that they are properly reflected in the lease or contract and that they are adequately performed. Also he may find himself responsible for additional necessary services not performed under a rental agreement.

ORGANIZATION OF JANITOR SERVICE.—In large concerns, janitor service usually comprises a unit of a building maintenance or building operations organization. Such an organization as a rule divides by crafts, as shown in Figure 48. The smaller the requirements, the less elaborate the organizational requirements, as indicated in Figure 49. Some organizations may find the services of a cleaning foreman and his assistants adequate.

SELECTION AND TRAINING FOR JANITOR SERVICE.—Selection of personnel for janitor service should be guided by the following factors:

1. Health. A physician's statement on physical ability and freedom from communicable diseases should be required, unless a physical examination is given by the organization as part of its employment procedure.
2. Education. Sufficient training to read and write. As an additional consideration, the applicant's ability to learn and to adjust progressively is important.

3. Character. Janitors usually work at night and have access to property, both personal and company. The desirability of reference letters is obvious. Probational appointment of from one to three months is recommended.
4. Personality. Personal qualifications center in adaptability to varying situations and ability to work harmoniously with others.

The induction of the new employee into the job and his initial training are important. The following are minimum requirements: (1) General

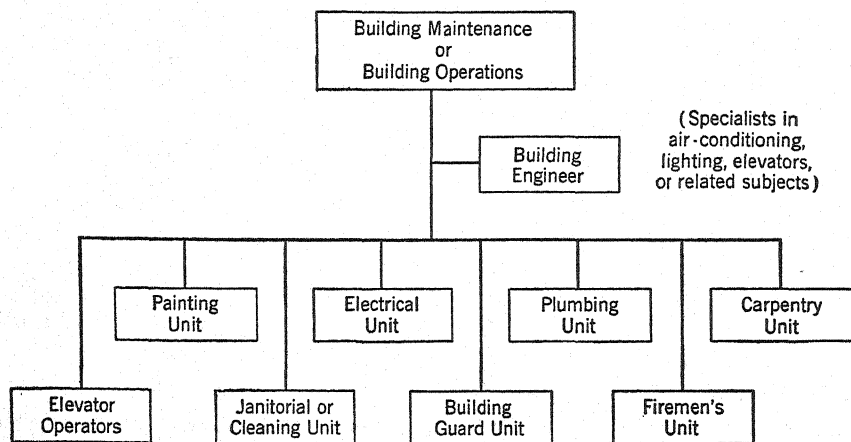


Figure 48. Organization Chart of Building Maintenance Division—Large Concern

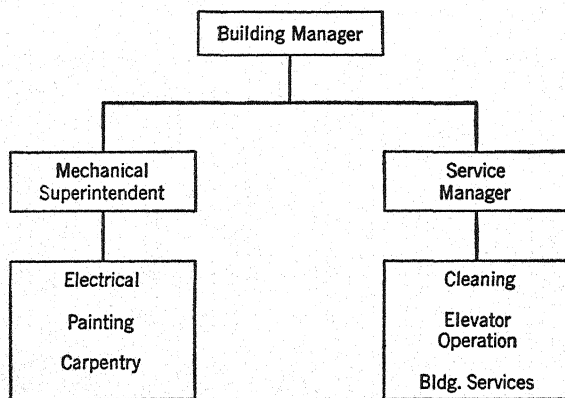


Figure 49. Organization Chart of Building Maintenance Division—Small Concern

orientation—the purposes of the organization, its personnel and salary policies. The newcomer should receive a feeling of “belonging” and a sense of dignity in his relationship. (2) Specific orientation—the janitor organiza-

tion and personnel regulations and practices, covering reporting in when ill, hours of work, pay periods, leave practices, and related matters. (3) Training—detailed instructions on assigned areas of which the individual will take care, and methods on where and how to obtain and store supplies and equipment. Explanation should be accompanied by demonstrations. Training should continue until the new employee is competent. Tactfulness on the part of the instructor is important. Brief and clearly written job instructions should be included covering job assignments by areas, the frequency of cleaning, the proper equipment and supplies to use for any particular task, where to get these items, where to store them, and how to replenish them. These instructions may be supplemented with general statements on personnel policies, etc.

SELECTION OF EQUIPMENT AND SUPPLIES.—The quantity and kind of supplies stocked for janitor services will be in accordance with cleaning requirements. Supplies will probably include furniture polish, metal polish, drain flush, soap, liquid or paste wax, water emulsion wax, sweeping compounds, and trisodium phosphate. Equipment may include vacuum, polishing, and scrubbing machines, wall-washing machines, mop trucks, floor mops, buckets, Daisy mops, sponges, floor brushes, pick-up pans, wax applicators, squeegees, and small brushes for radiators, Venetian blinds, and hard-to-get-at places.

In selection of proper equipment and supplies, the office manager supervising janitor service may be guided by his own judgment after considering manufacturers' statements of use and advantages in light of performance requirements. In some cases he may wish to make either simple or elaborate tests of certain items before selection. As a general rule, standard products are adequate when used as directed, but expensive composition floors (e.g., cork, linoleum) may be seriously damaged by application of poorly chosen cleaning compounds, and power equipment is needed for satisfactory performance.

CLEANING METHODS.—Technical improvements are continually being made in cleaning methods. For example, many modern buildings have built-in vacuum systems with wall outlets, the entire area being cleaned by this effective system. The procedures to be carried on in cleaning must be understood by the cleaning foreman, and instructions should preferably be written. Items to be covered by the instructions should include cleaning and maintenance of floors (wood, asphalt, mastic, linoleum, and tile), collection and disposal of waste paper, rug cleaning, porcelain cleaning and toilet sanitation, dusting, and window washing.

STANDARDS OF CLEANING PERFORMANCE.—While performance figures set for cleaning are open to question because of variances in areas to be

cleaned, the degree of thoroughness of cleaning, and the availability of good equipment, the following are believed to be typical:

1. Over-all. Between 4,500 sq. ft. and 6,500 sq. ft. of area per employee. This includes both daily cleaning and periodic services.
2. Wall Washing. 3,000 sq. ft. to 4,000 sq. ft. per day.
3. Window Washing. About 50 per day.
4. Scrubbing and Mopping. By machine, about 4,000 sq. ft. per hr. By hand, a two-man team should clean about 3,500 sq. ft. per hr.
5. Toilet Room. Thorough cleaning, not over 700 sq. ft. per hr.
6. Waxing. 500 sq. ft. per hr.

FREQUENCY OF CLEANING.—Two factors influence cleaning frequency: first, the standards of cleanliness which an organization wishes to maintain, which are, of course, in keeping with the uses made of the building areas; second, situations which tend to dirty an office and others which aid in maintaining cleanliness, as, for example, a soft coal area which dirties quickly, as compared with air conditioning which tends to maintain cleanliness. The following schedule of cleaning has been found generally acceptable:

1. Daily Attention. Mopping, sweeping, and cleaning as needed in toilet, lobbies, and lounges.
2. Nightly. Sweep or brush all floors, elevators, and stairs. Vacuum all rugs. Mop all corridors or thoroughfares of marble or tile. Dispose of all waste paper and trash. Dust all desks and other working surfaces.
3. Every Two Weeks. Clean elevator pits (open-door shafts may require more frequent cleaning). Wash and wax elevator floors. Wash elevator doors.
4. Monthly. Wash windows (in some areas every six weeks will be adequate). Wash interior glass. Wash and wax linoleum or composition floors. Dust walls, overhead pipes, and lighting fixtures.
5. Semi-annually. Wash lighting fixtures. Wash marble walls and wainscoting.
6. Annually. Wash or paint walls and ceilings.
7. As Needed. Send rugs to cleaners. Wash spots on floors, ceilings, and walls.

COSTS AND CONTROLS.—An adequate record and reporting system is desirable in order (1) to give assurance that work has been done, (2) to maintain safety, and (3) to reduce costs. The basic record should be a daily report indicating work done. This report may be prepared by the individual cleaner or by the cleaning foreman. A monthly summary report giving total work done, supplies consumed and cost, equipment purchased and cost, and the total hours worked and cost should be submitted to the head of

the building maintenance section or the office manager. This report should include a statement of elevator inspections, window cleaners' safety-belt inspection, belt fastener inspection, inspection of fire alarms, fire extinguishers, and other safety facilities. Analysis of these reports will point the way to methods for savings in supplies and time, and for improving the appearance of areas cleaned.

Elevator Service.—Where office space is rented, the office manager is interested in securing reliable, safe, efficient, and courteous elevator service. Incorporation of these provisions into a contract or lease presents difficulties. Consequently, the office manager may have to discuss elevator operation with the landlord in rather general terms. Although the following paragraphs are written for the operator of elevator service, they will provide the office manager with general data for such a discussion.

ORGANIZATION, SELECTION, AND TRAINING OF OPERATORS.—An organization employing elevator operators will practically always have a building maintenance or building operations unit of which elevator operation will be a part. Selection of elevator operators should be based on personnel evaluations of health, education, character, and personality. Considerations of health and character are approximately equivalent to those for janitors. Education and personality requirements should be higher.

The indoctrination and training of new operators should cover: (1) general orientation equivalent to that given janitors; (2) specific orientation including the organization of the elevator operations unit, personnel regulations and practices, reporting in when ill, hours of work, pay periods, leave policy, and related matters; (3) specific work details consisting of instructions and demonstrations under the supervision of the head operator. Courtesy and safety should be emphasized. Prior to carrying passengers, several hours of "solo" training should then be performed. Before this training, an elevator mechanic or the safety engineer should explain the operations of the elevator, stressing safety.

A set of written instructions, which may be combined with general employee information on leave, salaries, credit unions, uniforms, hours of duty, etc., should point out operating methods. Items to be included are:

1. Accidents—obtaining names of witnesses and reporting to supervisor.
2. Fires in shaft and in other parts of building.
3. Reporting defects, noises, broken glass covers over emergency release switches, burned signals.
4. Placing of emergency stop switch and motor generator switch to "Off" when car stalls or is stopped by under-car safety device.
5. Use (or avoidance of use) of release wrench and emergency release switches controlling hoistway door interlocks and car gate contacts.

6. Reporting to supervisor (or other action) when overloading of freight elevators seems imminent.
7. Preventing overloading of passenger elevators.

SCHEDULING SERVICE.—The scheduling of elevator service depends on the number of elevators, the number of floors to be served, the number of occupants of the building, and scheduled working hours of the occupants. Worthwhile savings may be made by study of passenger traffic during such periods in scheduling full operations during peak periods.

Rodent and Insect Control.—In some areas the control of insects and rodents is a pressing problem. Unless preventive action is constant, rats and mice may cause considerable damage before their existence is even suspected. The office manager may best meet this responsibility by securing appropriate literature on control methods (the Department of Agriculture has several excellent pamphlets) and by determining the adequacy of existing methods and the need for additional precautions.

Appearance of the Office

Reactions to Attractive Appearance.—Just as a clean, well-kept and orderly home reflects a well-bred person, so an office reflects the type of persons employed. A trim, businesslike appearance results to a considerable degree indirectly from good personal relations among the various members of the office organization. There is no furnishing in an office which can produce reactions equal to those from a cordial smile, and a cooperative and friendly spirit among office employees is a most important element in a pleasant environment. Physical factors, however, do have their definite influences and a good-looking office is the result of careful study and capable execution of a program of good layout, decorations, and furnishings.

One does not decorate a place of business solely for show purposes, but it is well to remember that the impression which an office makes on the regular employee, the customer, or the visitor often has a direct effect on their opinion of the company. An arrangement which suggests efficient and businesslike methods cannot fail to create a better impression than one in which confusion, noise, disarrangement, and untidiness prevail.

Office Interior.—Artistically-painted walls, attractive floor covering, and a well-arranged and well-proportioned layout all tend to stimulate operating efficiency. Up-to-date furniture and equipment, good lighting, heating, and ventilation to maintain comfortable conditions, and elimination of noise are also essential in an office, and all of these points are covered in greater detail elsewhere. Occasionally, bouquets of flowers, if properly cared for, may add a worthwhile touch. In introducing these more unusual features, however, a specialist should be consulted, for a little

goes a long way and overdoing defeats the whole purpose of creating an effective but businesslike atmosphere. In numerous cases, tastefully chosen pictures on the walls add as much atmosphere as drapes do to a living room.

Maintenance.—In addition to the maintenance and cleanliness taken care of by the janitor service, it is necessary to see that neatness and orderliness are observed and maintained by the office staff members in their daily work. Window sills, files, desks, and tables should be kept free from scattered papers, books, file folders, and other material. Adequate filing equipment, conveniently located, will provide a place in which to put otherwise unsightly piles of "to be filed" items until they can be inserted in their proper folders. Cluttered desks and supplies, and materials piled in inappropriate places, tend to detract from the appearance of an office and actually cause work to be performed with indifference to care and accuracy. In addition, employees should make certain that desks are cleared of all working papers each day before they leave.

Education.—Unless the employees have the same idea of cleanliness and orderliness in mind as that held by the office manager, the purpose of rules and regulations on the subject will be defeated. Some kind of training program demonstrating the advantages of having everyone's cooperation and depicting the ways in which employees can help will get the idea across to those who need it most with no offense. It seems surprising that anyone would have to be told to dust in the morning, to throw away faded flowers, and to empty ash trays, but it is necessary in some cases, and a little start in the right direction helps a lot.

The Use of Color in the Office¹

Reasons for the Use of Color in the Office.—The question naturally arises, Why bother with color combinations for offices? As long as offices are neat and clean and well lighted, why cannot maximum efficiency be obtained from office workers regardless of the color of paint which may be used? Why be concerned with the use of a lot of colors that it would seem would prove expensive at the outset and make for increased maintenance cost?

The answers to such questions are simply these:

1. Color does have energy—it is the medium of some of the most exquisite human sensations. It is intimately associated with the individual's most varied moods.
2. Just any color will not do. Gray may not show dirt, buff may be a good wall color—it does not clash with any style of furniture or color of

¹ Courtesy of the New York Executives Association (New York Chapter NOMA).

drapes—but office people do not wish to spend their working hours in such drab, uninteresting, characterless surroundings. Office workers cannot be stimulated to interest in their tasks under such conditions and cannot work to maximum efficiency in surroundings that actually differ little in decoration from the county jail or the state penitentiary.

3. No adviser on office decoration advocates unplanned use of color merely for color's sake. Colors have functional values and, if properly employed, can build morale, lessen fatigue, promote continuity of employment, and actually increase production.

4. Neither the initial cost of painting nor the later cost of maintenance is increased by the scientific use of color in offices. A high quality flat, egg-shell, or semi-gloss paint costs no more in an attractive color or an eye rest color than in a white. No maintenance painting crew or painting contractor can, justifiably, claim that the labor cost of applying colored paint is more than for the application of white, gray, or buff.

5. As a matter of fact, the proper selection of colors with high reflection value can even contribute to lower lighting costs. There is, therefore, every reason to be concerned with the scientific selection of colors for use in offices. To neglect this matter is merely false economy—the same as failing to provide workers with all the latest mechanical devices, such as adding machines, bookkeeping machines, and other time- and labor-saving devices to assist them in doing their work and making it more efficient.

Results of Effective Use of Color.—Companies which have employed effective color combinations for their offices have found that such action has resulted in

1. Building institutional prestige.
2. Demonstrating a sound interest in the general welfare and the health of their workers.
3. Reducing workers' nervous tension by lessening eye fatigue.
4. Increasing general morale.

The impressions of a business firm which outside visitors form, consciously or unconsciously, are often influenced by the appearance of the company's offices. If the offices are cheerful, attractive, and efficient looking, they tend to inspire a feeling of confidence in the enterprise as an up-to-date business organization. On the other hand, offices that are drab and uninviting or need painting will arouse a feeling that if the company is so neglectful of good appearances, it may also be shiftless in its performances, and substandard in products or services.

The use of effective color combinations for offices can lessen or prevent eye fatigue which so often contributes to physical fatigue, nervous tension, digestive upsets, absenteeism, and to less efficient work. Reduced eye

fatigue not only lessens the expenditure of energy and improves efficiency, but also raises morale. The results are usually a better spirit among employees, not only toward one another but also toward the management, thus enhancing cooperation and loyalty.

Factors in the Selection of Colors.—No extensive research or study is needed to acquire a sufficient knowledge of color to make scientific selections of the kinds and combinations to use in offices. There is no mystery about color. The average business man, although seldom concerning himself with selecting colors for the home, knows that the three primary colors are red, blue, and yellow; that a mixture of all three will produce a neutral gray; but that all others are made from proper combinations of these three.

Yellow and blue together in equal parts produce green. Blue and red mixed in equal quantities produce violet. Red and yellow mixed equally produce the last secondary color, orange.

To increase the range of pure colors, six more—the tertiary colors—are added. Two parts yellow and one part blue combine to make yellow-green. Two parts blue and one part yellow combine to make blue-green. Continuing with the same mix proportions, the following intermediate or tertiary colors are produced: blue-violet, red-violet, red-orange, yellow-orange.

The twelve colors thus available are those usually shown on the color wheel so widely used by paint manufacturers, painters, and decorators. These colors are pure colors because they have been made by mixing varying proportions of two primary colors together. Pure colors, however, are seldom used in full strength when painting walls and ceilings.

Adding the third primary color to any of the above mixes grays the color, since an equal combination of the three pure primary colors produces neutral gray.

Hue, value, and intensity are the three properties of color. Hue is the name of a color—such as red, orange, blue, etc.

Value is the measure of light or dark in a color, and any color can be made darker or lighter without destroying its identity as to hue. For example, blue, light blue, dark blue. A value lighter than normal is called a tint. A value darker than normal is called a shade. Tints are made by the addition of white to opaque colors. Shades are made by the addition of black. The term "tone" includes all tints, shades, and the normal of a color and, having no definite meaning, should be omitted from color terminology.

Intensity tells whether a color is strong or weak. The intensity of a normal color can be changed by adding something which will dull or gray it.

In addition to the three basic qualities, colors have other properties which have a bearing upon their use. For example, they may be classed as warm or cool colors. The warm colors are those in the range of yellow, orange, and

red. They are known as warm colors because they suggest heat, blood, sunshine, and are useful where bright, stimulating effects are required. They are often used in interior paint color schemes to compensate for the lack of natural sunlight.

The cool colors are those containing blue, and which suggest to us the hues of winter, ice, snow, and water. They are customarily used to produce an impression of calmness and restraint, although they are sometimes depressing if not properly used. For interior painting they are used to counteract the effect of abundant sunlight from the south or west.

Warm colors are usually classed as "advancing" colors and cool colors as "retreating" colors, based upon the effect they have on any surface or area to which they are applied. Dark colors in general also may be classified as "advancing," while light colors tend to retreat. The qualities of light and dark colors are used to change the apparent dimensions of rooms when painted according to the principles of Functional Color, or Color Dynamics.

Colors have come to have particular meanings which enable us to use them to produce definite effects. They have acquired these through associations, uses, nature, and the emotions aroused by seeing them.

Yellow immediately suggests to us the sun and its bright warmth. Psychological tests have proved it to be the most cheerful of colors. Being a highly luminous color, it is stimulating to the eye and for that reason it is also stimulating to the nerves. The therapeutic value of yellow is that of overcoming depression by means of its cheerful and stimulating qualities. It is therefore used, logically, to create the needed sensation of sunlight in otherwise dark rooms and corridors.

Blue, on the other hand, is cool, remote and sometimes depressing. Associated with the sky and great expanses of water, blue suggests a feeling of space and distance. It is cool, clear and transparent. Tests show that blue has the effect of reducing muscular tension. Therefore, it would have a tendency to lower blood pressure, reduce pulse and respiration rates. Blue, in variation, has qualities which make it desirable for use in rooms where a feeling of calmness and formality is desired.

Red has probably the most familiar associations of all the colors. It suggests to us danger, fire, excitement, and life itself, since it is the color of blood. Red can be used to stimulate, but too much can be irritating. Certainly, if not used as normal red, it does have a definite use in decoration. The dusky pinks, rose tans, warm beige and other gray reds have a much wider application. These colors, as mentioned, are very good in areas requiring a warm color treatment.

Green, being a secondary color made from yellow and blue, partakes of the nature of both—it has the warm cheerful qualities of yellow and the cool dignity of blue. This, together with its association with nature, makes it a popular color of almost universal appeal. Being cool in effect,

it is ideal in rooms having high temperatures or an excessive amount of sunlight. Because of its eyerest qualities, it is particularly suited for areas where close eye work is done.

The selection and placement of color are influenced by the use of the room and its orientation. The rules governing the employment of warm and cool colors must be taken into consideration. Warm colors are best in rooms receiving principally cool light from north and east, and for rooms having an inadequate amount of natural light. Cool colors can do much to counteract the effect of an abundance of warm light from south or west. In this connection the control or equalization of strong light from one direction may be accomplished by the system of using two or three wall colors. As an example, take a room receiving an unnecessary amount of light from south or west. The walls opposite the windows should be painted a medium or darker value of gray-green, blue-green, or other cool color to reduce the glare of light from that surface. The end walls receiving less direct light would be painted in a lighter value of the color mentioned first. The window wall which receives no direct light would be painted in the lightest value of the wall color, the ceiling in soft white, ivory, or a tint of the wall color.

Colors may be used to change the apparent proportions—long, narrow rooms may have the unattractive balance equalized by the use of darker, advancing colors on end walls and lighter, retreating colors on long side walls.

Square rooms avoid the impression of monotony by having one wall, preferably the wall opposite the windows in a color or value different from the others.

High ceilings may be perceptibly lowered in effect when painted darker than the walls. The use of a dado also appears to reduce the height of a room by dividing the wall area.

Colors preferred for use on corridor walls are those of a bright sunny character. Such colors are recommended for their stimulating, morale-building effect. They also serve to compensate for the lack of light.

One other factor in the proper selection of color has to do with the type of artificial lighting used or contemplated.

Incandescent type of lighting does not seriously interfere with color selection but does have some influence on the appearance of color. It has a tendency toward a slight yellowing because of a trace of yellow in the light.

Daylight fluorescence is best used with cool colors, such as blues, blue-greens, greens, and blue-violets as the blue is always intensified. The influence on other colors is as if blue were added, i.e., pink and rose go to a violet cast; yellow to yellow-green, etc. White and soft white are best used with warm colors such as ivory, cream, tan, yellow, rose, peach, or

coral. Adversely affected would be yellow-green, green and blue-green because the red in the light itself, which is the complement of green, would cause these colors to appear grayed or muddy. In view of this fact it is always advisable to select colors under the actual type of artificial illumination that is used or contemplated.

Good Paint Is the Most Economical.—In decorating an office it is important to select paint products on performance and durability, not on a price per gallon basis. Paints, varnishes, and enamels that will withstand the severe test of frequent washings and resistance to abrasion should be chosen. A cheap paint possesses neither the beauty of finish of a quality product nor the ability to withstand the resistance of the washing compounds and chemicals commonly used by the janitor's crew of the office maintenance department.

Insurance Protection

Coverage Against Insurable Risks.—Adequate insurance is that impregnable fortress behind which sound business management barricades itself against attack on its financial structure by the unknown hazards to which it is exposed as a result of its operations. Any hazard to which a business is exposed that might cause a serious financial loss should be insured to an extent that if a loss occurred the business would be indemnified for the loss, or payment would be assumed by the insurance company. The practical office manager, therefore, will either insure or bring to the attention of the proper authority in his organization all hazards to which the business is subjected, so that it can be determined whether the risk warrants the purchase of insurance or whether it is one to be self-assumed.

To be without proper insurance is unpardonable, and to be overinsured is wasteful. American and British markets provide a source through which insurance can be purchased against any business hazard.

Types of Insurance Coverage.—To assist in solving insurance problems, brief outlines of the following more common types of insurance have been prepared:

Accident and health ²	Cargo
Accounts receivable	Marine
Annuities ²	Inland transportation
Automobile	Credit
Aviation accident	Earthquake
Boiler and pressure vessel	Elevator
Burglary	Employer's liability
Business interruption	Excess
Camera floater	Extra expense

² Covered in Chapter 10.

Fidelity	Products liability
Fine arts	Public liability
Fire	Refrigeration
Flood	Rent
Forgery and alteration	Riot, strike, and civil commotion
Glass	Robbery
Hospitalization ³	Sprinkler leakage
Life ³	Title
Machinery	Transportation
Malpractice	Use and occupancy
Monies and securities	Warehouse floater
Parcel post	Water damage
Paymaster robbery	Windstorm, cyclone, and tornado
Performance bonds	Workmen's compensation

ACCOUNTS RECEIVABLE INSURANCE.—Accounts receivable insurance, if written on an all-risk basis, indemnifies the insured against loss due to his inability to collect unpaid receivables if the records are destroyed, damaged, stolen, or otherwise disappear from within the premises when the exposure was caused by fire, flood, hurricane, cyclone, explosion, earthquake, water damage, strike, riot, or civil commotion. It also may include the cost of reconstructing the records.

AUTOMOBILE INSURANCE.—Comprehensive automobile insurance consists of protection against loss of or damage to the vehicle by fire, theft, hail, windstorm, sandstorm, flood, etc. The coverage can be written on a valued basis, whereby the insurance company agrees to pay a predetermined sum should the car be a total loss, or it can be written on an actual value basis. Personal effects are not covered unless specifically insured. Collision insurance covers damage to the insured's automobile by collision with another object, and is written as a separate item. In the interest of economy a deductible type policy is suggested. Property damage insurance covers damage to the property of others caused by the operation of the insured's automobile. The basic amount of \$5,000 usually provides sufficient coverage. Bodily injury insurance covers injury to, or death of, a person or persons as a result of the operation of the insured's automobile, and the present trend of court decisions indicates \$50,000 one person and \$100,000 two or more persons as the minimum coverage recommended. Special low rates can be obtained by favorable fleet experience.

AVIATION ACCIDENT INSURANCE.—Aviation accident insurance is now written at a very nominal premium on a world-wide basis, and in its limited form insures against death or dismemberment while traveling as a fare-paying passenger in a plane operated by a commercial airline on a scheduled flight. A broader form covers while a fare-paying passenger in any type

³ Covered in Chapter 10.

of aircraft operated on a fare-paying basis by a commercial airline. The broadest form obtainable covers while flying in any type of commercial, military, or private aircraft, and excludes only the person piloting the ship. This insurance can be purchased on an individual or a group basis, and when purchased in group form the premium cost may be reduced considerably. Aviation accident insurance may include, in addition to the principal sum, weekly indemnity and blanket medical coverages.

BOILER AND PRESSURE VESSEL INSURANCE.—This form of insurance protects the insured against loss caused by the explosion of a boiler, pressure vessel, or a unit of any kind containing air, refrigerant, steam, liquids, or gases under pressure. It can be written in such limited form as to indemnify for only direct damage caused by the explosion of an insured item, or it can be broadened to almost any extent desired, even to include the bursting of a boiler, public liability resulting from an explosion, loss of income (U & O) resulting from loss of service of insured unit, and accidental destruction of machinery, electrical apparatus, switchboards, wiring, piping, and many other items that are peculiar to certain types of businesses. The inspection service furnished by good boiler insurance companies can save many times the premium costs.

BURGLARY INSURANCE.—This insurance covers loss that is occasioned by forced or felonious entry, or attempts thereat, into the insured's premises. Most policies are not operative unless there is visible evidence of force, violence, or the use of tools, or other means of forced entry. Loss by theft can be covered for an additional premium. Burglary insurance policies can be tailored to fit residences, warehouses, stores, safes, banks, offices, and manufacturing plants.

BUSINESS INTERRUPTION INSURANCE (Use and Occupancy Insurance).—Business interruption insurance does for the business that which it would have done for itself if its operation had not been interrupted by one of the perils insured against. The coverage can be written with the insured as a co-insurer or complete coverage can be obtained. Where the coverage is complete, the policy is usually written to guarantee net profits based on those of previous years projected so as to estimate the profits for the current year, and fixed expenses, such as salaries of employees who must be retained, taxes, rents, interest, advertising contracts, and other expenses of a fixed or contractual nature that the insured must bear. This insurance usually does not apply to an office unless the office is a part of a manufacturing or production unit. For an eleemosynary institution, office, club, or other venture not operated for profit, extra expense insurance is recommended.

CAMERA FLOATER INSURANCE.—Camera floater insurance is usually written on an all-risk basis to cover cameras (still or motion), projectors, and

speaking equipment either on the premises or in the custody of salesmen or other representatives.

CARGO INSURANCE.—Marine cargo insurance is ordinarily written to cover all perils incidental to a shipment moving on the high seas, connecting inland waters, and connecting land conveyances.

Inland transportation insurance can be specific or in the form of a floater policy, and covers against losses resulting from the inland transportation of freight, including freight moving by rail, truck, trailer, etc., and can be broad enough to include all risks, or limited in its scope.

CREDIT INSURANCE.—Credit insurance protects the insured against losses due to the business failures of his customers and their consequent inability to pay their accounts. It is particularly desirable for business where large lines of credit must be granted on a seasonal basis, and where it is impossible to obtain reliable credit experience on the customers to whom credit must be extended.

EARTHQUAKE INSURANCE.—Earthquake insurance is normally written only in districts where earthquakes have occurred, or where there are known serious earth faults that may make the area subject to earthquake disturbances. It covers liability for loss resulting from earthquake or volcanic eruption, but does not include loss resulting from windstorm or tidal wave even though these accompany an earthquake. If fire occurs subsequent to loss by earthquake or volcanic eruption, that part of the damage caused by fire is not covered by the earthquake coverage, but is covered by fire insurance.

ELEVATOR LIABILITY INSURANCE.—It is advisable never to take an elevator for granted, but to examine the lease. A clause may be included, releasing the owner from any liability arising out of the use of the elevator. This insurance covers the insured against losses resulting from injuries from the existence, operation, and maintenance of elevators, hoisting equipment, and shaftways.

EMPLOYER'S LIABILITY INSURANCE.—See Workmen's Compensation Insurance.

EXCESS INSURANCE.—Excess insurance is a stop-loss type of insurance, and is usually written where one elects to be a self-insurer up to a certain point, or where one elects to purchase complete coverage for a few employees who are subject to greater exposures than the others in the group. It may be used where an employer is self-insured for workmen's compensation, or some other risk, up to a given amount. The excess insurance is a means of limiting the self-assumed liability.

EXTRA EXPENSE INSURANCE.—Extra expense insurance is a form of use and occupancy insurance particularly applicable to non-profit organizations where as a result of an interruption certain continuing expenses would have to be met.

FIDELITY BONDS.—There are four basic types of fidelity bonds to cover fidelity risks, namely :

1. Individual bond
2. Named schedule bond
3. Position schedule bond
4. Blanket bond

The first, as indicated, covers an individual; the second, a group of individuals named in the bond; the third, a group of positions named in the bond irrespective of those occupying the positions; and the fourth, all employees of the employer. A fidelity bond of the proper type to fit the insured's exposure is very important, and too often overlooked. The need for this type of insurance is evidenced by items appearing almost daily in the public press which show that trusted employees do steal from their employers.

FINE ARTS INSURANCE.—Fine arts insurance is ordinarily written on an all-risk basis to cover paintings, manuscripts, valuable rugs, books, tapestries, sculptures, and other items of similar nature.

FIRE INSURANCE.—Fire insurance, because of its importance, is perhaps the most common form of insurance. Recent revisions of the policy forms have made them more understandable and shorter. This insurance, like other forms, must be tailored to fit the particular exposure. It is, of course, important to be certain that adequate insurance is carried, unless the buyer desires to be a co-insurer. Equally important is the matter of having all the supplemental coverages necessary to completely cover the hazards to which the business is exposed. These supplemental coverages are very nominal in cost and oftentimes as important as the basic insurance. If the risk is sprinklered, it is necessary to make sure that the policy includes sprinkler leakage coverage. Also it is wise to make certain there are no gaps in coverage between fire and boiler coverage if both are carried. Under the standard form of fire insurance the insured is indemnified for the loss suffered on the basis of depreciated value. With present-day rising values most plants have appreciated rather than depreciated and, therefore, certain companies writing selected risks insurance can in some states write repair or replacement insurance, which is treated in the next paragraph.

FIRE INSURANCE INCLUDING REPAIR OR REPLACEMENT COVERAGE.—Repair or replacement insurance not only gives life to the book reserves for depreciation, but if the company insures for adequate amounts, will provide for the complete repair or the cost of new buildings or equipment to replace that damaged or destroyed without any loss whatsoever to the owner. It is usually written as an endorsement to a fire policy, and provides for the underwriter to settle a loss on the basis of the actual cost of repairing or replacing the damaged property without deduction for depreciation. This is a radical departure from the usual actual cash value settlement of the standard fire policy. The endorsement of one large underwriter sets up an actual or sound value for the property covered, and the amount of depreciation; the sum of the two makes the amount of insurance to be purchased. This endorsement further agrees, in the event of total destruction, to provide funds, to the extent that the insurance company would be liable to repair or replace on the present site, toward the building of a plant on a new site provided the plant and machinery will be used for the same purpose as the property destroyed. This same applies to the replacement of machinery that may be totally destroyed. This insurance is not written by all companies, and those that do write it are selective as to the risks they cover. It is presently not available in all states because many state insurance regulations have to be amended by legislative action in order to permit payments under fire insurance on other than an indemnifying basis.

FLOOD INSURANCE.—This type of insurance protects against loss from rising waters caused by swollen rivers and other water losses usually occasioned by an act of God. It is almost unobtainable through domestic companies, but can be purchased through the British market.

FORGERY AND ALTERATION INSURANCE.—Forgery and alteration insurance covers against pecuniary losses sustained through forgery or alteration of any check, draft, promissory note, or bill of exchange, or any other written promise or order to pay a sum certain in money, made or drawn by, or drawn on the insured, or on one acting as an agent of the insured.

GLASS INSURANCE.—This type of insurance is usually confined to large plates of glass, mirrors, or glass signs, and insures against loss as a result of their breakage from any reason except losses covered by fire insurance.

MACHINERY INSURANCE.—Machinery insurance is commonly written as part of boiler insurance and covers losses resulting from accidental destruction of machinery, motors, electrical apparatus, switchboards, transmission lines, etc.

MALPRACTICE INSURANCE.—Malpractice insurance covers against losses from suits arising out of errors or negligence of companies' physicians, surgeons, dentists, anæsthetists, hygienists, technicians, or nurses.

MONIES AND SECURITIES INSURANCE.—This type of insurance is ordinarily written as an all-risk policy, but, it can be written in limited form to cover only certain hazards. In its broad form it insures against loss from fire, theft, and mysterious disappearance while on or off the premises, including holdup of messengers or custodians.

PARCEL POST INSURANCE.—Parcel post insurance usually presents a cheap and simple means of insuring parcel post shipments against loss or damage from any cause while in transit by parcel post. Settlement of claims is usually promptly made and does not require the red tape and delays frequently experienced with government insurance.

PAYMASTER ROBBERY INSURANCE.—Paymaster robbery insurance is similar to monies and securities insurance, but is specifically limited to cover payroll funds.

PERFORMANCE BONDS.—Performance bonds are issued to cover the insured against loss resulting from the failure of a contractor to fulfill the terms of a contract.

PRODUCT LIABILITY INSURANCE.—Product liability insurance protects the insured against all claims for bodily injury and property damage arising out of the sale, consumption, or use of the insured's products.

PUBLIC LIABILITY INSURANCE.—Public liability insurance protects the insured against all losses to the person or property of others, except employees, as a result of the insured's operations. This type of coverage can be written to cover any exposure involving the general public.

REFRIGERATION INSURANCE.—Refrigeration equipment insurance can be written to cover losses by the freezing and bursting of refrigerating equipment and piping, explosion of compressors and tanks, and damage from liquids or gases escaping from them. Refrigeration interruption insurance will protect the insured against losses resulting from the failure of refrigeration units to maintain proper temperatures.

RENT INSURANCE.—In these days of ever-increasing rental costs, rent insurance will protect the insured against increased rentals which would have to be paid for the unused term of the lease if the company was forced to find new quarters as a result of fire or any of the perils insured against.

RIOT, STRIKE, AND CIVIL COMMOTION INSURANCE.—This insurance, as the name implies, indemnifies the insured for losses resulting from riot, strike, or civil disorders, except those caused by military or civil actions. The exceptions can be covered by a special extension of the regular clause. This coverage is usually written as an endorsement on fire contracts.

ROBBERY INSURANCE.—See Burglary Insurance.

SPRINKLER LEAKAGE INSURANCE.—Sprinkler leakage insurance is a component of complete fire insurance where there is a sprinkler system. It protects against losses caused by accidental discharge of sprinklers or leakage from the fire protection system.

TITLE INSURANCE.—This insurance is quite different from other types in that it insures the past and not the future. Written coincident with the purchase of realty, the insurance company agrees to be responsible for defects in title to property that were unknown at the time of purchase.

TRANSPORTATION INSURANCE.—Transportation insurance is a form of insurance covering the transportation of goods and materials by any form of commercial transportation. It can be written in limited and specific forms, or in broad floater form.

USE AND OCCUPANCY INSURANCE.—See Business Interruption Insurance.

WAREHOUSE FLOATER INSURANCE.—Warehouse floater insurance is a form of fire insurance which may be limited or broad in coverage. It can be written to cover only specific risks, or it can be on an automatic basis, and arranged so as to cover automatically any new storage locations that are used between inventory reporting dates, which are usually on a monthly basis.

WATER DAMAGE INSURANCE.—This insurance should not be misconstrued as a flood coverage, because it covers only for direct loss caused solely by accidental leakage or overflow of steam or water from plumbing, heating, and refrigerating systems, water supply and elevator tanks; also rain or snow admitted through defective roofs, downspouts, or through open doors, windows, and skylights. It does not cover leakage from fire protective systems, floods, or backing up of sewers.

WINDSTORM, CYCLONE, AND TORNADO INSURANCE.—Windstorm, cyclone, and tornado insurance is ordinarily written as an endorsement on fire insurance policies, although it can be written as a separate policy. It covers only against losses resulting directly from windstorm, cyclone, or tornado, or rain or snow driven through openings by the high winds. The policy has many exclusions and should be checked carefully.

WORKMEN'S COMPENSATION INSURANCE.—Workmen's compensation insurance policies meet the requirements of the workmen's compensation acts of the state or states for which the insurance is written, and insure against awards made under the acts, and legal liability in the event a case is taken to the civil courts. In some states it is extended to include liability arising from occupational diseases. Policies may be endorsed with an all-states

endorsement for employers having employees in many states, but caution must be exercised to comply with the requirements of states having compensation acts that make it mandatory to insure through the state-operated insurance fund. Presently the monopolistic states are: Nevada, North Dakota, Ohio, Oregon, Washington, West Virginia, and Wyoming.

Procurement of Insurance.—Insurance contracts are of necessity complicated and wordy documents. The verbiage of insurance contracts is a matter of documenting Supreme Court decisions over many years, thus interpreting the meanings of the various clauses. Because of the complexity of insurance policies, those who purchase small amounts of insurance rely entirely upon the expert services that can be furnished by a reliable insurance agency or broker, who is in a position to negotiate coverage with the company offering the lowest rate for the particular type of coverage required. If insurance requirements are large, they should be centralized in an insurance department so that the various lines can be shopped to obtain the broadest coverage for the least premium.

Reducing Insurance Costs.—Small as well as large risks may receive the benefit of experience ratings, which is the most common form of reducing insurance costs. Insurance underwriters will provide information on how to effect loss reduction and thereby obtain lower premium costs as well as avoid the inconvenience caused by losses. The most common tools of loss prevention and consequent cost reduction are good office and plant housekeeping, well-organized safety committees, and fire brigades. Careful employee selection plays an important role in reducing all losses, and adequate accounting controls tend to reduce losses by theft and embezzlement. Retrospective rating plans are available to those who have a large volume of insurance.

Setting Adequate Valuations.—Many buyers of insurance base values, particularly for fire insurance purposes, on the depreciated book values, which in most cases are grossly inadequate. To have sufficient fire insurance, one must value real and personal property on the basis of the present-day replacement value. If sufficient insurance is carried under the most common form of fire insurance, the underwriters agree to pay current value less depreciation. Repair and replacement type of fire insurance is fast gaining popular favor, for it brings to life the depreciation reserves that the insured has been carrying on his books merely as bookkeeping figures for tax purposes. This type of insurance requires that the insured have 100% coverage. The contract agrees that the insurer will pay for, repair, or replace the property that was damaged, destroyed, or lost without any deduction for depreciation, provided the building or equipment is to be used for the same purpose as at the time of the loss.

The limits of liability and casualty policies should be sufficient to meet the present-day trends of court awards, which seem to be ever-increasing in the amounts granted to those injured.

Settlement of Claims.—Reputable insurance companies pay claims promptly. Delayed settlements are almost always the result of insufficient coverage or inflated claims made in an attempt to overcome the deductions required by co-insurance clauses. In preparing insurance claims, practically all out-of-pocket expenses in connection with the loss may be included. Fire insurance companies will pay for the wages paid to employees while fighting the fire as well as cleaning up the debris. Burglary insurance provides not only for payment for that which was stolen, but also for damages to the premises or equipment as a result of the burglary. In presenting claims, the insured company must be certain that all items covered under the terms of the insurance contract have been included.

CHAPTER 12

PHYSIOLOGICAL FACTORS

Physical and Physiological Factors in Working Conditions

Requirements of Office Employees.—A recent morale audit conducted in a large industrial office has revealed some interesting data. The findings indicated, to the surprise of many, that salary is not the most important factor in morale building—in fact, earnings ranked fifth in importance. It is very interesting to observe that, in the opinion of the employees in this particular office, security was first and comfortable working conditions second as the most important factors affecting morale.

Employee morale is probably the most important single factor with which management has to deal, in so far as conducting an efficient organization is concerned. Since good working conditions are so important to workers, it is evident that the physical factors of an office are significantly effective in stimulating morale. An office must be a clean, healthy, safe place in which to work. Each state has its own laws covering minimum legal codes applying to sanitation, safety, and other working condition factors, but the best results are secured by providing better facilities than required by law.

Accessory Facilities.—Adequate lockers or wardrobe facilities, conveniently placed drinking fountains or water coolers, and ample rest rooms and toilet facilities are minimum requirements. Correct posture seating will go a long way toward reducing fatigue. The office should be kept free from dust, fumes, and odors.

Illumination.—Daylight is, of course, best for work areas, but even in the most modern buildings it is necessary to use artificial light part of the time, and in older buildings office employees may work by artificial light most of the time. The light provided should be of sufficient foot-candles intensity to be adequate for the varying requirements, thus avoiding the penalties of insufficient light—eyestrain, frayed nerves, and fatigue—all of which cost the employer money because of lost time or low work efficiency. Decoration of walls and ceilings should be in light colors for high reflection of light down on the working plane.

The old method of providing individual desk lamps for each desk is rapidly being discarded. This method of light work areas causes glare and

is expensive when the cost of the lamp standard plus the investment required in special wiring is considered. The nearest approach to actual daylight is obtained at a nominal over-all cost by the use of fluorescent lights.

Heat and Fresh Air.—Excessive heat induces mental sluggishness while insufficient heat means that employees stop work to get warm, or slow down their pace and lose in dexterity and ability to coordinate their motions into efficient work cycles. Modern heating systems are usually thermostatically controlled and thus maintain even temperatures throughout the offices if adequate radiation is provided, with properly placed radiators and a good thermostat. A temperature of from 68° to 70° Fahrenheit is most satisfactory for health and efficiency. However, many office people, especially women, prefer a minimum of 72°.

Modern air conditioning solves the ventilation problem and is thermostatically controlled. Where there is no air conditioning, drafts, improper humidity, and sudden changes in temperature cause colds which take a heavy toll in reduced office efficiency and attendance. In such offices, ventilation is a definite problem because different individuals have different opinions regarding the amount of fresh air needed, especially those near the windows which may be opened. In a number of offices a brief recess or rest period is called twice a day and all windows are opened. Thus both fresh air and relaxation are provided at the same time.

Noise Abatement.—Increasing attention is being given to noise abatement. In industrial offices the noise may come from the factory, in downtown offices it may come from the street outside, but the main cause of irritating noises in many cases is office machines. Sound treatment has been installed in many offices with satisfactory results—even sound treated ceilings do a very good job of deadening noise.

In appraising the merits of any of the new equipment mentioned here it is important to use data from recent surveys, because the companies manufacturing such devices have made great strides in improving their products during recent years.

Heating, Ventilating, and Air Conditioning

Purpose of Heating and Ventilating.—While there are other considerations of significant importance, the prime objective in the heating, ventilating, and air conditioning of an office building is to provide comfort for the occupants, in varying degrees, from the irreducible minimum-heating, to ultimate year-round air conditioning. The proof that providing comfort is profitable is presented in Figure 50, a summary of the findings of two research organizations which conducted a nationwide survey of various types of business

	1 Year or Less	1 to 2 Years	2 to 3 Years	3 to 5 Years	Over 5 Years	Year 'Round	Summer Only	Yes	No	Don't Know	No Answer	Reduce Hot Weather Fatigue	Increase Work Done	Reduce Errors	Reduce Absence and Tardiness
MANAGEMENT															
How long have you had air conditioning?	21.7	41.3	8.7	24	4.3										
Do you use it year 'round or only for summer?						78.3	19.5					2.2			
Do you find that air conditioning increases employee efficiency?								91.3		8.7					
In which of the following respects does it benefit employees' work? ..												91.3	78.3	43.5	21.7
What kind or type of work is benefited most by air conditioning? ..											4.3				
How do your employees like air conditioning?															
Are employees happier and more contented with it?								93.8			8.6				
Does it tend to reduce employees' irritability in hot weather?								73.9			6.5				
Do employees get along better together?								60.9			17.4				
Has air conditioning reduced your labor turnover?								2.2	67.4		6.5				
Has air conditioning been a profitable investment?								78.3	2.2		13				
EMPLOYEE															
With air conditioning do you find work less tiring on hot days?								93.8	5.4		0.8				
Do you tend to make fewer errors with air conditioning?								54.6			20.8				
Can you do more work on hot days with air conditioning?								92.3			1.5				
Do you miss fewer days from work in summer?								24.6	43.8		11.6				
If you changed jobs would you prefer an air conditioned place?								83.8	8.5		1.5				
Do you think most of your fellow workers favor air conditioning? ..								90.8	3.1	1.5					
Are your fellow workers less irritable and easier to get along with?								72.2	20		1.6				
Is your "boss" more pleasant with air conditioning?								54.7			3.8				

Figure 50. Reactions to Air Conditioning in
Result of nation-wide survey conducted 1938-39 by two research

to obtain the reactions of management and employees before and after air conditioning.

Air conditioning will be considered here as year-round air conditioning which, by definition, includes not only ordinary heating and ventilating functions performed on the atmosphere within an enclosure to produce and

Increase Level of Efficiency	Prevent Dirt Makes Work Cleaner	Encourage Promptness	Reduce Heat Sickness	All Employees	Selling Force	Clerical	Executives Only	Favor It.	Find It "All Right"	Notice Difference	No Difference	Have Very Little Turnover	Too Early To Tell	Don't Think So.	Never Miss Days	Wouldn't Make Any Difference	About 50-50	Have Never Had Difficulties	Is Always Pleasant	No Effect	Have No Boss
REACTION PERCENT																					
6.5	8.7	4.3	4.3	41.3	2.2	50	2.2	97.8	2.2	2.2	19.6	21.7	23.9	6.5							
REACTION PERCENT																					
										24.6				6.2	20	6.2	4.6	6.2	17.7	22.3	1.5

Office Buildings by Management and Employees organizations, Psychological Corporation and Hooper-Holmes Bureau, Inc.

maintain conditions conducive to human comfort; but also cooling and dehumidifying in summer and heating and humidifying in winter, and providing the desired degree of air motion and cleanliness at all times. Failure adequately to provide any one of these functions in a system is not air conditioning in the complete sense.

Recognizing that the ideal objective is atmospheric comfort within office surroundings during all hours of occupancy, for all seasons of the year, consider the steps to be taken in attaining this ideal.

Heating.—Heating is, of necessity, the first step. Yet the finest office building heating system alone does not provide the ideal in winter comfort and of course does nothing to provide interior comfort during the other three seasons of the year when heating is not required.

The function of any good heating system is to retard an abnormal flow of heat from the body caused by radiation toward a cold surface—window or cold wall—or by convection to cold surrounding air. Cold air movement within the heated space further aggravates the latter.

Fundamentally then, a good heating system provides hot surfaces—for example, steam or hot water radiators—under the windows or along the cold external walls to accomplish three purposes: (1) to radiate heat *toward* the body to offset the heat radiated *from* the body toward the cold surfaces; (2) to heat, by convection and conduction, the surrounding air to a comfortable ambient temperature; and (3) to prevent cold air drafts by opposing cold downdrafts flowing down windows and cold walls with rising currents of warm air. The system may be manually or automatically controlled, difference in first cost generally governing the decision.

RADIANT HEATING.—A modern adaptation of an ancient principle used by the Romans 2,000 years ago is radiant or panel heating, which should be given serious consideration for new structures. Small pipes through which usually hot water at a maximum temperature of about 150° is circulated are imbedded in the floors, ceilings, or outside walls, to heat the entire floor or wall “panel” to a temperature of from 75° to 120°—actual required temperature depending on building heat loss.

Such a system eliminates standing radiators. The radiant effect of the warm panels produces a sensation of warmth and comfort by retarding radiation of heat from the body. Greater convection for the same degree of comfort is permissible, hence surrounding air temperature may be lowered to about 68°.

The heating systems described, though ideal from the standpoint of maintaining comfortable temperature conditions during the winter season, fall short of the ideal in producing comfort on at least two counts:

1. It provides no ventilation other than natural infiltration of outside air through window cracks as a result of wind pressure or by stack or chimney effect in the building. Any additional outside ventilation air required must be obtained by opening windows which admit, in addition to the needed fresh air, cold, dirt, and outside street noises. Lack of ventilation can be seriously objectionable in crowded buildings or areas, particularly where

tobacco smoking is prevalent. Dirt is a serious problem where ventilation is by natural means only.

2. It provides no winter humidification. When outdoor temperatures are below 30° F. and indoor temperatures are 75°, the inside relative humidity will be less than 20%, which is popularly described as "desert dryness" or "dry as the Sahara." Relative humidity maintained at about 25% to 30% in the winter seems to be accepted for optimum comfort. However, at 30% relative humidity, condensation or frost on the windows can be expected when the outside temperature drops below about 20° F.

Ventilating.—Ventilation, through fresh or outside air introduction, is the next step in attaining the year-round comfort ideal, and is essential to physical comfort. Ventilation air must be supplied to, and removed from, the office interiors by natural or mechanical means. Under artificial conditions of indoor life, the air undergoes certain physical and chemical changes which are brought about by the occupants themselves. Without adequate fresh air dilution, the surrounding air becomes vitiated, contaminated with odors, offensive, and changes in temperature and humidity, eventually causing discomfort and a disinclination for physical activity. Tobacco smoking can greatly aggravate these effects.

In normal office building occupancy—50 to 75 sq. ft. floor area per person—adequate ventilation usually can be accomplished by introducing 1 to 1½ changes per hr. of fresh air to the cubical contents of the building which is from 12 to 25 cu. ft. per min. per person of fresh air. Current practice indicates the need of at least 15 cu. ft. per min. fresh air per person for removal of objectionable tobacco smoke odors.

NATURAL VENTILATION.—It is to be expected that normal wind pressure on typical office building exposures will cause sufficient air leakage around windows and doors to give adequate ventilation for population densities noted above. This is "natural ventilation," and a preponderance of office buildings are so ventilated today. Natural ventilation is totally unscientific, subject to the whims of wind pressure, permits dirt and street noises to enter as windows are "cracked" or opened wide seasonally, causes drafts, and can be quite inadequate in large, crowded offices. The modern building with tight steel window sash construction can defeat the effectiveness of natural ventilation.

MECHANICAL VENTILATION.—Mechanical ventilation by means of a system of supply and exhaust fans, with air distributing and collecting ducts which introduce a fixed quantity of outside air into the building in accordance with the predetermined requirements of the individual spaces, is obviously the scientific approach to the problem and the most satisfactory from a ventilation standpoint.

These systems are installed in conjunction with the direct heating system previously described. The air thus introduced should by all means be adequately filtered, and with the provision of winter tempering of the supply air to 70°, and adding humidification, ideal comfort conditions can be maintained within the building through the winter, early spring, and late fall seasons. The "positive pressure" set up within the building reduces wind pressure infiltration and, in general, a well-designed mechanical ventilation system can successfully overcome the objections noted above to a natural ventilation system.

However, the mechanical ventilating system, plus the direct heating system, or "winter air conditioning," represents a substantial first cost investment, and can provide ideal comfort only from October through April in most northern sections, and from November through March in the South, or 50% to 60% of the year. During the remaining months the occupants suffer from being subjected frequently, and often for long intervals, to uncomfortable temperatures and high humidities. Windows are thrown open, dirt enters, street noises are objectionable, hot gusts of wind blow papers about, and a general condition of discomfort prevails, the forestalling of which the *additional* owning and operating costs of complete year-round air conditioning warrants investigation. The increase over the cost of the winter air conditioning system may prove to be surprisingly low, and the expenditure well justified by the advantages gained.

Air Conditioning.—Year-round air conditioning, the final step in attaining the ideal in atmospheric comfort has been previously defined in this chapter. Major economic justification for air conditioning may be tabulated as follows:

1. Owner-Occupied Buildings
 - (a) Improved comfort, health, efficiency, employer-employee relations, contentment, reduction of absenteeism among employees. (See Figure 50.)
2. Tenant-Occupied Buildings
 - (a) Increased occupancy.
 - (b) Possible higher rental revenue, to amortize the additional investment for air conditioning and pay returns on the money spent.
 - (c) Improved owner-tenant relations, fewer complaints, more satisfaction.
 - (d) Appreciation in value of normally low rental spaces.
 - (e) More stable tenancy—longer leases.
3. Both Types of Buildings
 - (a) Modernization.
 - (b) Reduction of cleaning and redecorating maintenance.

REQUIREMENTS TO BE MET BY GOOD AIR CONDITIONING.—Too much emphasis has been placed on the mere cooling of a building as the essence of air conditioning. Without detracting from the importance of cooling and its adjunct, dehumidifying, it must be recognized that these processes represent only a part of the important functions performed by a year-round air conditioning system. It has been said that a good air conditioning system is one that keeps the individual comfortable without his being conscious of it.

Listed below, but not necessarily in the order of their importance, are the constituents of good air conditioning for office buildings as generally agreed upon in the industry:

1. *Comfort Conditions (Temperature and Humidity).* Winter, 70° to 75° F., with minimum 25% to 30% relative humidity. Summer, 78° to 80° F. *Not to exceed* 45% to 50% relative humidity, with outside temperatures 85° to 95° F. and higher. Air of 80° F. temperature and 50% relative humidity has by usage come to be accepted as the standard economically justifiable comfort conditions, although 78° F. and 45% humidity are nearer the optimum, representing conditions at which over 90% of individuals will feel comfortable.¹

2. *Air Cleanliness.* Adequate filtering of all air moved through the conditioning apparatus into or within the building is, for reasons which will be obvious, of prime importance. Fresh air filtering is only part of the answer. Dirt, lint, tobacco smoke, odors, bacteria—all are stirred up or generated within the building by the occupants. By comparison, the fresh air may be relatively clean. Therefore, adequate filtering of recirculated air which is passing through the apparatus for reconditioning, as well as fresh air, is a prime requisite of good air conditioning.

New developments and improvements of the product in the air filter industry in the past ten years have today made a practical reality the removal from the air stream of such invisible microscopic impurities as tobacco smoke, bacteria, and fumes, together with some types of gaseous odors and vapors, as well as the familiar dirt, dust, lint, soot, pollen, and other of the semi-visible physical particles of contamination. It can be unqualifiedly stated that the degree of cleanliness of circulated air obtainable today is purely a matter of how much the owner wants to spend for his filtering system. For example, for removal of tobacco smoke from the recirculated air there is the electrostatic filter; for the removal of odors, the activated carbon filter; for the removal of dust, the screening filter; and for the control of the bacterial content through air sterilization, ultraviolet radiation is available. Thus the ultimate in air filtering is commercially attainable, and the length to which an office building owner is justified in going will be dictated by careful analysis of the economic and other considerations. Pos-

¹ American Society of Heating and Ventilating Engineers 1946 Guide. *

sibly a combination of two of these methods of filtering may be desirable for a specific building.

3. *Adequate Ventilation.* Good ventilation should provide for one to two complete changes of filtered outside air per hour to replace that in the building cubical contents, with provisions for optionally increasing the ventilation air quantity at peak seasons, or for intervals of short duration, to freshen up the building. Good practice dictates that the system always operate to introduce *not less than* the design quantity of ventilation air into the conditioner spaces.

4. *Air Circulation.* It is the flow of conditioned air through the rooms of the office building that is removing the heat and absorbing the excess moisture during the summer, providing ventilation at all seasons, and furnishing tempered humidified air during the winter. Proper circulation of this medium to produce uniformity of conditions throughout the occupied area is of paramount importance.

Calculated summer cooling load governs the design quantity of air circulated, which generally ranges from five to eight changes per hour, to the cubical contents of the conditioned rooms, with six changes representing a good design average. With a ten-ft. ceiling height this is approximately one cu. ft. per minute of conditioned air supply per square foot of conditioned floor area.

The two major problems of air circulation are elimination of perceptible air motion (drafts) and noise, particularly in systems for office buildings, where the normal noise level may be relatively low, and the occupants quietly working at desks for long periods of the day tend to be supersensitive to drafts and noise. The presence of either or both can make the occupant critically conscious of the air conditioning. The successful elimination of both draft and noise is a result of good design and operation of the air distribution system. With adequate acoustical treatment, properly selected fan equipment for quiet, efficient operation, proper location of supply air outlets, correct air velocities out of the supply grills, and careful test and adjustment of the system after installation, this objective can be accomplished.

Supply outlets may be located in a wall, or the vertical side of a duct near the ceiling, discharging the conditioned air horizontally across the room, or located under the windows, as part of a window unit conditioner, discharging the air vertically upward. The latter location reduces drafts to a minimum, although the former by careful design and adjustment is satisfactory and has the advantage of effecting coverage to a greater depth of the conditioned area.

A third method of satisfactory air distribution is by means of ceiling outlets which may be horizontal plaques located at the ceiling which distribute the air radially and horizontally in all directions, or ceiling diffusers which

are manufactured outlets incorporating guide vanes into the construction. The air pattern is determined from the contour and design of the guide vanes.

5. *Control of Conditions.* The maintaining within the office spaces, daily and seasonally, of uniform temperature with maximum and minimum relative humidity held to within defined limits, all well within the comfort zone, is a requisite of good air conditioning. This introduces the problem of zoning the system to compensate for internal and external variation of the load.

In the case of an office building this is chiefly an external load variation occasioned by daily sun travel, in which the various building exposures may be subjected to the direct rays of the sun, or may be shaded continuously or intermittently. For example, a west wall in the summer is shaded until noon, and then receives the sun's rays in increasing intensity as the sun travels toward the horizon, until the peak is reached at 4 P.M. The air conditioning system must be properly zoned to compensate for this appreciable variation in the load caused by the daily travel of the sun, otherwise the west zone offices can be too cool in the morning and too warm in the afternoon.

Usually proper zoning of entire areas, under the influence of automatic controls—for example, all the west exposure offices may be considered as one zone served by a separate conditioning system—is considered to be adequate for the production of satisfactorily uniform temperatures in that entire zone. Some owners, however, may desire selective temperature control of individual spaces during summer operation, wherein the occupant by adjustment of a thermostat, may within limits vary the temperature to suit his desires. This can be a costly refinement if done in such a manner so as not to upset the over-all performance and balance of the system. If such a control system is being given serious consideration, the cost with and without individual temperature control should be investigated so that the owner is in possession of all the facts to guide his ultimate decision.

Control for winter heating can be of the simplest—hand shutoff valves at each radiator—to the most exacting, individual room thermostat controls, in which first cost can be a deciding factor. In between these two extremes a system may be provided wherein the building is divided into zones where the general requirements will be relatively constant. For example, a large building may be provided with one zone for each exposure, or each exposure may be subdivided into an upper and lower zone, in the case of high buildings to compensate for building stack effect.

Problems in Designing an Air Conditioning System.—There are numerous factors affecting the design of an air conditioning system for an office building. The designing engineer has many considerations to investigate, weigh, and carefully analyze. Good judgment plays an all-important

part and while there are generally several practicable and feasible solutions to the problem indicated, usually, all things taken into consideration, there is only one best type of system for a given building.

FACTORS AFFECTING DESIGN IN NEW AND EXISTING BUILDINGS.—Office buildings fall into two broad categories—new buildings and existing buildings. Both new and existing buildings have factors affecting air conditioning design common to both, such as:

1. Size and shape of building, number of floors, and interior arrangement of offices, corridors, floor heights.
2. Architectural style and type of construction as to walls, window exposure, interior beam arrangement, general character of building.
3. Type of occupancy—tenant or owner—affects provision for future rearrangement of interior partitions.
4. Budgeted first cost.
5. All or partially air conditioned.
6. Requirements for zoning to compensate for load variations, internal and external.
7. Treatment of special areas, first floor stores, cafeterias or restaurants, auditoriums, large areas with heavy occupancy, such as clerical and stenographic spaces, drafting rooms.
8. Services available—power, water, steam, gas—cost, quantity, and characteristics of same—operating load factor and seasonal hours of operation as factors governing selection of most economical type of refrigeration system to own and operate.
9. Available space for location of equipment.
10. External and internal heat loads as affected by population density, watts of lighting, building orientation, percent of glass in exterior walls, type of wall construction, quantity of ventilation air required.
11. Outside summer and winter peak design temperatures and corresponding desired inside design conditions.
12. Over-all economies of owning and operating for various types of systems under consideration.

FACTORS IN EXISTING BUILDINGS ONLY.—Factors affecting design which are unique to existing buildings include:

1. Most practical and economical utilization of existing equipment and facilities, particularly the existing heating system.
2. Studies to determine system requiring least building alteration.
3. Desirability for minimum interruption of normal business activity.
4. Selecting space to be occupied by equipment having low rental or utility value.

The Refrigeration Plant.—The year-round air conditioning system performs a cooling function in the summer in removing heat and moisture from the air. This means the application of refrigeration, which in simplest terms may be described as subjecting the circulating air to a cold surface, which may be metal coils, or cold spray water. Heat flows from the air to the cold surface and moisture condenses (dehumidification) out of the air, on to the cold surface.

The refrigeration cycle is a heat pump, which pumps heat out of the cold air cooling surface and discharges it to the refrigeration system condenser, where this heat usually is carried away by water flowing through the condenser tube surface. The water may be obtained from the city mains or a well, and after passing through the condenser be wasted to the sewer, or it may be pumped from a cooling tower and reused continuously, being sprayed in the tower and cooled by the process of evaporating a portion of the water to the outside air. The refrigeration cycle functioning as a heat pump requires some form of energy expenditure to drive the pump. Theoretically and practically many forms of energy may be used, but the most common are electrical power (motors) and steam (generally steam turbines), with motor drive most prevalent.

To condition the circulated air, the cold surface to which it is subjected is maintained by the refrigeration plant at a temperature ranging from 40° to 50° F. Circulating water, chilled to this temperature, may be the cooling medium, or liquid refrigerant, evaporating directly inside the air cooling coils, may be employed. The former is designated as a chilled water system, the latter, a direct expansion system.

In some localities well water may be available at temperatures usually from 55° to 65°, and may be utilized to accomplish as much as 50% of the required refrigeration effect with attendant material savings in first cost and operating cost of the refrigerating plant.

TYPES OF REFRIGERATION SYSTEMS.—There are many types of systems commercially available, and several refrigerants. The designing engineer must carefully weigh the factors of first cost, operating cost, cost of maintenance, available power, water, steam, etc., services, space requirements, flexibility, noise and vibration problem, load factor, and so on in determining the best system for the specific application.

Most widely used are motor-driven compression systems, utilizing the chlorinated hydrocarbon "Freon" series of refrigerants, Freon-11, Freon-12, etc. Steam-turbine-driven compression systems, while not as prevalent as motor driven, are frequently used, owning and operating cost economies and other considerations having justified their selection.

TYPES OF COMPRESSION SYSTEMS.—Compression systems are so named from the fact that the heart of the system, the "heat pump," is a mechani-

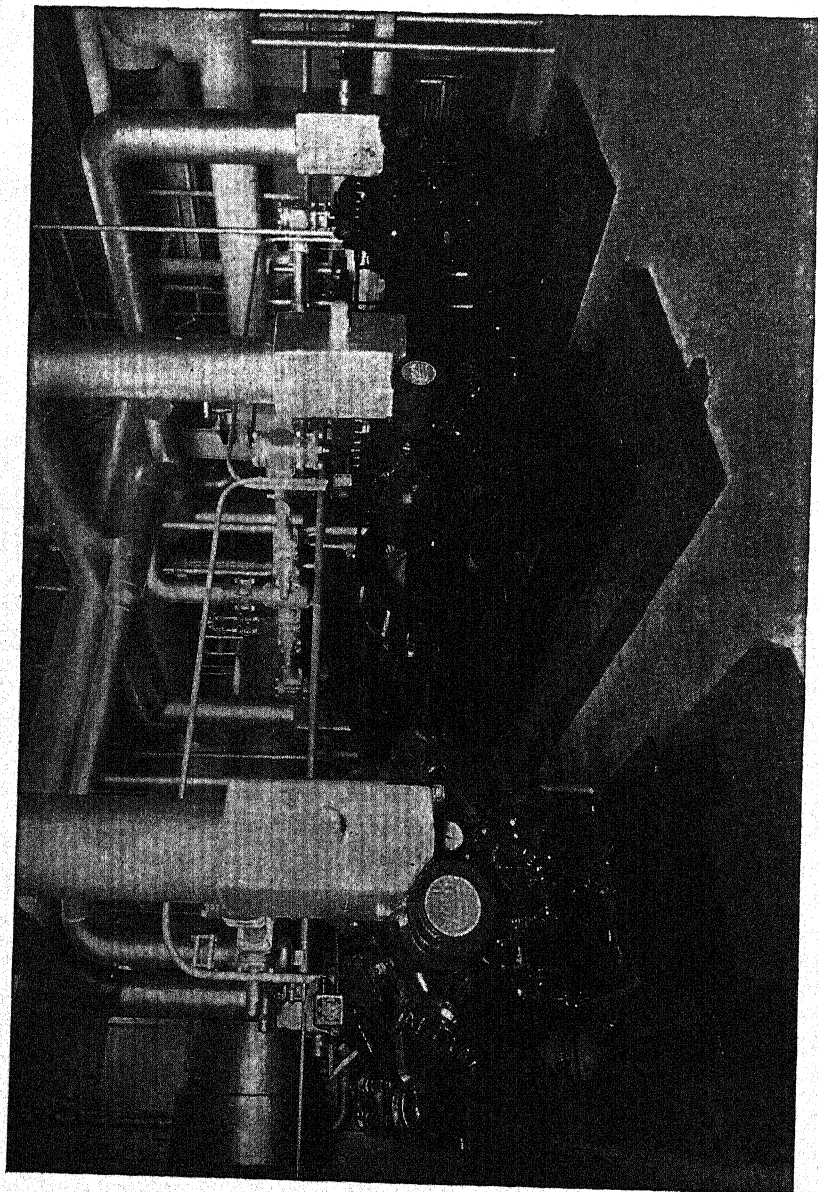


Figure 51. Refrigeration Plant for Air-Conditioning Duty—"chilled water system" using reciprocating "Freon-12" compressors

cally driven gas compressor, which compresses the refrigerant vapor from a low pressure and low temperature, to a higher pressure, $2\frac{1}{2}$ to $3\frac{1}{2}$ times the low pressure, and higher temperature. At this higher pressure and temperature the vapor discharges to the condenser where the heat it has absorbed in the process of cooling the air, and in so doing condenses to a liquid. This liquid is then fed back to the low-pressure side to evaporate

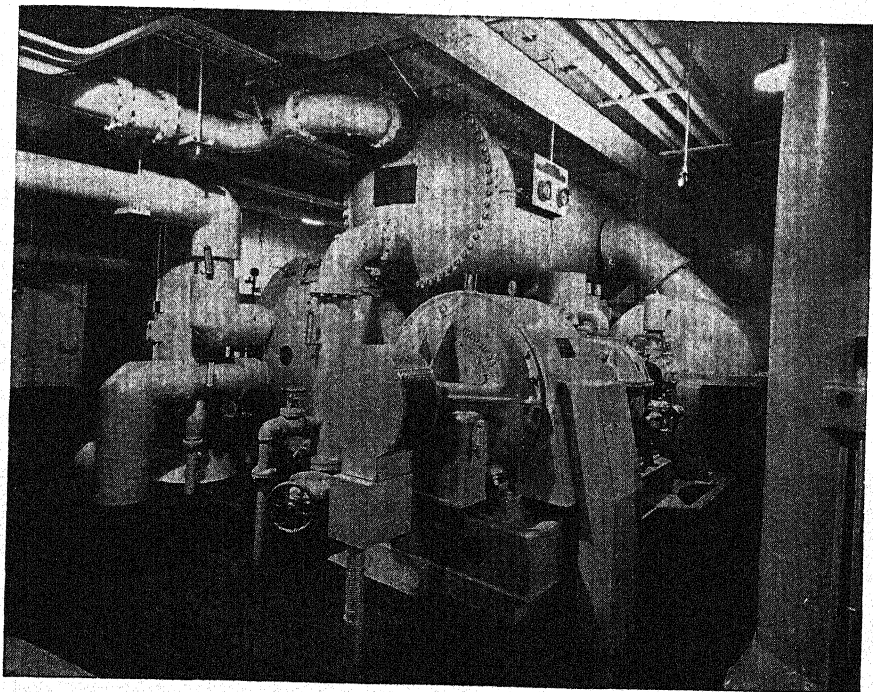


Figure 52. Refrigeration Plant for Air-Conditioning Duty—"chilled water system," 600 tons refrigeration capacity, in single centrifugal "Freon-11" compressor

and absorb more heat from the air. This cycle is continuous as long as the plant is in operation.

The refrigerating compressors today are commonly of two types—reciprocating (see Figure 51), most applicable for from small to medium capacities, and centrifugal from medium to large capacities (see Figure 52).

REFRIGERATION CAPACITY.—The unit for measuring refrigeration or cooling effect is the ton of refrigeration. This term originated in the early days of the refrigeration industry when the manufacture of ice was the principal function of a refrigeration plant, and is a measure of the refrigeration effect necessary to freeze a ton of water to ice in a 24-hour day. Quantitatively the ton of refrigeration is the removal of heat from matter

at the rate of 200 BTU per min., 12,000 BTU per hr. The average office building generally requires from two to three tons' refrigeration capacity per 1,000 sq. ft. of floor area for summer air conditioning.

POWER REQUIREMENTS.—A motor-driven refrigeration compressor for an office building air conditioning system requires approximately 1 to 1 $\frac{1}{4}$ connected motor horsepower per installed ton of refrigeration capacity. Over-all power requirements, including motors for compressors, water pumps, main air circulating fans, and auxiliaries, at full load operation, can be expected to be from 1.1 to 1.5 maximum kilowatt consumption per ton refrigeration installed capacity.²

Thus, assuming approximately 2 $\frac{1}{2}$ tons installed capacity per 1,000 sq. ft. floor area for a typical building, the maximum power requirements for a year-round air conditioning system would be expected to run three to four kilowatts per 1,000 sq. ft. floor area. This must be recognized as a *maximum* power demand which reaches its peak in the summer with all equipment operating at full load capacity. Average seasonal demand would obviously be appreciably less, falling off as much as, or more than, 75% in the winter when the refrigeration plant is shut down.

Types of Air Conditioning Systems.—Whether the office building is existing or newly-constructed, tenant- or owner-occupied, several- or many-storied, rectangular or irregular in shape, all these considerations influence the selection of the type of air conditioning system for a specific application. Existing buildings will probably utilize the existing heating plant and incorporate it as an adjunct to the year-round system. For example, direct radiation presently installed under the windows would probably be left intact, assuming its operation as a heating system had been satisfactory in the past.

Broadly speaking there are three general types of air conditioning systems applicable to office buildings. They are:

1. The central station overhead-duct air distribution system
2. The window unit system
3. The self-contained room air conditioner system.

CENTRAL STATION OVERHEAD-DUCT SYSTEM.—In the central station system, ducts carrying the conditioned air properly zoned for load variations are installed along the ceiling of each floor, through corridors or inside the corridor partition line, may or may not be furred in, and supply conditioned

² These are actual figures obtained from analyzing the total connected loads in ten air conditioned office buildings located in Texas, Massachusetts, Missouri, California, Ohio, Pennsylvania, and Delaware. Tons capacity on the same buildings varied from 1.8 to 3.4 tons per 1,000 sq. ft. floor area—average 2.6 tons. Buildings varied in size from four to nineteen floors, 45,000 to 200,000 sq. ft. floor area, 90 to 500 tons installed capacity.

air through grills discharging air horizontally to the individual office spaces. Recirculated air is collected at one or more central locations and conducted by ducts back to the conditioning apparatus where it is blended with ventilation outside air and the entire mixture is conditioned.

The refrigeration and conditioning apparatus may be arranged and located as follows:

1. All refrigeration and conditioning apparatus located on one floor, serving one or more floors (probably a maximum of three), resulting in multiple complete systems located up through the building. This system permits spreading out the initial investment by conditioning one floor or a limited number of floors at a time.

2. Conditioning apparatus located as in (1) supplied with chilled water from the refrigeration plant located centrally in the basement or on the roof.

3. All of the conditioning and refrigeration apparatus for the entire building located at some central location, basement, or roof penthouse. The conditioned air is carried through vertical ducts to individual fans on each floor, the number of such fans being determined by the number of zones required on each floor to compensate for sun load variations. In the case of very tall buildings, the conditioning apparatus may be located on an intermediate floor, distributing conditioned air both up and down to the zone fans, thus materially reducing duct sizes since approximately one-half the air is distributed in each direction. The refrigeration plant would probably be located in the basement. One of the preceding two methods is usually adopted as being more economical when the entire building is to be conditioned at one time. Further advantage is centralization of maintenance of the refrigeration plant.

WINDOW UNIT SYSTEM.—In this system unit conditioners are located under each window to condition the outer “skin” of the building. Large internal areas are handled from a central station overhead-duct system, which also can supply ventilation air to the outer “skin.” The units may be individually automatically controlled, or zoned for groups of offices, and may combine heating, cooling, and air circulation, replacing radiators. This system may prove to be quite costly, both in first cost and maintenance, compared to the central station overhead-duct system, both for new and existing buildings, and more so for the latter. Filtering of the air circulated may be less effective or quite ineffective.

This system either eliminates entirely (if there are no inner areas to condition), or reduces the size of, overhead ducts and either eliminates or reduces equipment room space requirements on individual floors.

There are several types of such systems:

1. A system having compact window units containing water coils, fan, and replaceable filters. The refrigeration equipment is located centrally, and

supplies chilled water to the unit coils in the summer. In the winter, the same water is heated and circulated through the unit coils. Drain piping carries away the moisture which condenses on the coils during summer operation. The central station duct system for conditioning the inner area may provide the required outside ventilation air.

2. A system having window units supplied with conditioned air, through vertical riser ducts located along the outside wall columns, from a centrally-located refrigeration and air conditioning plant. Steam or hot water coils are incorporated in the unit for winter heating.

3. A system having window units supplied with conditioned fresh air at high pressure through small vertical riser ducts, from a central conditioning plant. The high pressure air discharges through a series of nozzles in the unit and thereby induces the flow of room recirculated air over coils, also located within the unit, through which chilled water is circulated in the summer and hot water in the winter. Moisture which condenses on the unit coils at times in the summer is carried away by drain piping. The fresh air is filtered, the induced recirculated air is not.

SELF-CONTAINED ROOM COOLER SYSTEM.—Self-contained room coolers of the portable or semi-portable type are located under the windows, and draw fresh air from the outside through the unit for ventilation and for condensing duty. The units contain cooling coils, fans, refrigeration units (usually $\frac{1}{2}$ or $\frac{3}{4}$ hp. motor driven), and filters.

The existing heating system is not disturbed. The unit may be installed in the summer and removed and stored in the winter. Obviously, maximum flexibility is obtained, the units may be installed quickly and with minimum disturbance to the building interior, one or more offices may be conditioned at a time if desired, individual control is provided at the option of the occupant, and first cost is low compared to other systems. Maintenance cost may be higher, but not seriously so, with the expected gradual improvement in the design and construction of these units. The trouble-free household refrigerator is a substantiating proof of that statement.

Cost of Owning and Operating an Air Conditioning Installation.—Owning and operating costs of an air conditioning system may be resolved into three parts:

1. Fixed charges
2. Maintenance costs
3. Operating costs for services

FIXED CHARGES.—Fixed charges which are the costs of owning the system include amortization, interest, taxes, insurance, and rent.

Amortization cost depends on the total first cost of the complete air conditioning system and the amortization period. This last may be ten to

twenty years for large buildings in which the building owner is purchasing and installing the air conditioning, or as low as five years or less for leased quarters. Deterioration and obsolescence are factors to be considered in arriving at the amortization period. A figure generally considered as a good average amortization period, harmonious with the expected approximate life of this type of equipment, is fifteen years.

Interest is usually based on the unamortized balance. For example, a fifteen-year amortization period with a 4% interest rate will approximate 2.1% average annual interest rate.

Insurance may vary considerably depending on the type of structure and other factors.

Rent represents the value of the space occupied by the equipment. Little or no rent may be chargeable, since, for example, the conditioning apparatus may be located in space around the elevator shaft or an interior court which is normally not rented.

A Typical Fixed Annual Charges Computation

Assume \$100,000 first cost of system:

Amortization (15-year basis)	6.7%
Interest (assume 4% rate)	2.1%
Taxes, insurance	1.0% (probably considerably on the safe side)
Rent (assume none)	0

Total $9.8\% \times \$100,000 = \$9,800$ annual fixed charges

MAINTENANCE COST.—Maintenance costs include materials such as replacement parts, lubricants, refrigerant, etc., and labor charges for making repairs, installing new parts, cleaning, painting, replacing oil and refrigerant, cleaning and repairing filter, and the costs of other items incidental to the general maintenance and upkeep of the system.

The operating engineer and staff in a large building may have a wide variety of duties extending beyond the operation, care, and maintenance of the air conditioning system. Therefore, only a portion of the salaries of this group should be chargeable to the air conditioning system.

Many of the items that constitute maintenance cost are highly variable, depending on the type, capacity, and quality of the equipment so that an estimate of annual cost is difficult to approximate. In the past 1% to 2% of first cost has been considered a fair assumption for maintenance cost.

OPERATING COST.—Operating cost, in this discussion, refers to the cost of services, i.e., power, water, steam, coal, oil, etc., consumed to operate the air conditioning system.

Refrigerating equipment operating cost is relatively a considerable portion of the total operating cost because the refrigerating equipment usually is the largest consumer of power and water. Generally two-thirds or more of

the connected motor horsepower for the entire system is in the motors driving the refrigeration compressors. The actual power consumed seasonally by the compressors is widely variable depending on cooling load variations, hours per day the building is open and hours per season the equipment operates at full capacity and at reduced capacity. Geographic location has considerable bearing on these factors, a system in New Orleans operating many more hours and at higher load factor during a summer season than a system of like capacity in Boston. The New Orleans system might be expected to consume 50% to 60% more "ton-hours" of refrigeration than the Boston system.

Efficient automatic or manual capacity-reducing devices are available for refrigeration compressors, permitting reduction in capacity of the system attended by reduction in compressor power consumed as the cooling load falls off.

Condenser water for the refrigeration system condensers may be obtained from:

1. The city water mains
2. A cooling tower
3. A well

If the source be city water the cost is dependent on the local water rate and the quantity consumed. The latter is variable depending on the load and the temperature of the water leaving the city mains. Automatic controls conserve the quantity of water used by regulating the quantity consumed in accordance with the cooling load requirements and temperature of the water entering the condenser.

A cooling tower system pumps recirculated condenser water between spray tower and condenser. The water is cooled by evaporation to the outside air and the only loss is the small make-up water quantity required to replace that lost by evaporation and "drift." The cost of this make-up water is usually negligible. The operating cost of a cooling tower is thus represented practically 100% by the cost of power to operate the fan and pump.

A well water condensing system reflects an operating cost represented by the power consumed by the well pump.

Other things being equal, low combined owning and operating cost will govern the selection of the type of condenser water system. The high operating cost when using city water justifies in a majority of cases the added first cost of a cooling tower. In the case of well water, available quantity, chemical quality (non-corrosiveness), and temperature are important considerations to explore thoroughly, apart from the cost.

Fan, pump, and auxiliary motors operating cost varies with the seasons. The conditioning apparatus fans operate year-round to provide ventilation, but pumps and refrigeration system auxiliary motors run only during the

summer season. However, these motors operate continuously during that period, while the building is open for business, and the power consumed by them is substantially constant.

Heating cost, the last item of operating cost, is the cost of fuel consumed to heat the building, which includes that necessary to balance the building heat loss, to temper the outside ventilating air introduced, and to evaporate moisture for winter humidification.

Cost of Air Conditioning per Square Foot of Floor Area.—The *first cost* of the air conditioning for the group of office buildings referred to earlier was investigated. These buildings varied in size from four to nineteen floors, 45,000 sq. ft. to 200,000 sq. ft. of floor area, 90 to 500 tons' refrigeration installed capacity. Considering these as existing buildings in which the already installed heating system facilities—radiators, piping, boilers, pumps, etc.—were used intact, the air conditioning being installed to provide a year-round system, the cost of the air conditioning installation varied from \$1.02 to \$1.70 per square foot of floor area. These were prior-to-1940 costs. Current costs have become appreciably higher, due to considerable increase in labor costs and some increase in material costs.

Operating cost is very difficult to predict because of the many variables encountered, as pointed out previously. A year-round operating cost for power, water, and fuel estimated at around ten cents per square foot of floor area per year, for a typical 100,000 sq.ft. to 200,000 sq.ft. office building in the middle northern states (St. Louis, Pittsburgh, Philadelphia localities) would give an indication of what might be expected.

A summary of approximate annual owning and operation cost expectancy per square foot of floor area for year-round air conditioning installed in existing office buildings (prewar first cost), results in the following figures:

Assume average first cost at \$1.50 per square foot.

Fixed charges (see previous computation)	9.8% × \$1.50 = \$0.15
Maintenance	2% × 1.50 = 0.03
Operating cost	= 0.10

Total cost per square foot floor area per year = \$0.28

Results Depend on the Engineering Specialist.—It has been the purpose of this discussion to present the highlights of office building air conditioning in non-technical language in so far as possible, stressing the economics of the problem, to permit ready evaluation of investment vs. expected dividends, and to help the reader justify in his own mind the claim that air conditioning warrants the expenses involved.

Air conditioning is a complex art. The variables and the application factors encountered are numerous. Many types of apparatus and systems are available, and the problem finally revolves around solving the intangible riddle of human comfort. Office building air conditioning, particularly the

large installation, is a challenge to the resourcefulness and ingenuity of the designing engineer. Too much stress, therefore, cannot be laid on the importance of retaining a capable, experienced air conditioning engineering specialist to thoroughly analyze the problem and design and engineer the best and most economical system available for a specific installation. Providing a good year-round air conditioning system is an important step in the modernization of any office building.

Lighting

Objectives in Lighting.—The purpose of a lighting system is to make seeing possible. In selecting a lighting system, therefore, the office manager aims to provide for adequate comfortable seeing conditions for employees that at the same time will be practical and economical to operate and maintain. For this purpose he will often find it advisable to secure the advice of a lighting specialist and, for large jobs, may call in a consulting engineer.

It is not uncommon to find that from 80 to 100% of office workers have defects of vision. The first step, therefore, in reaching right seeing conditions would be to make sure that all workers who have visual defects are equipped with proper corrective lenses in order that their eyes may function properly under the lighting system provided. Because office work usually involves sustained eye work of a relatively severe nature, office workers should make a practice of consulting competent eyesight specialists at fairly regular intervals. In this way, refractive changes within the eyes may be discovered and corrected before serious eyestrain develops.

The seeing tasks in offices involve the reading of fine print, poor carbon copies, pencil notes, photostat reproductions and poor handwriting. Illumination adequate in quality and quantity for such tasks is being recognized by office managers as a good investment as well as a means to eyesight conservation. A series of tests showed that the average speed of typing from printed copy as well as from transcribing shorthand notes could be increased 10% to 20% where proper lighting is substituted for poor lighting.

Another definite advantage of a proper lighting system is better utilization of floor area. With poor lighting, desks are usually located close to the windows leaving vacant areas in the center of the room, but if illumination is adequate it is possible to make the most efficient utilization of all floor area.

Seeing Factors.—There are four fundamental factors which affect visibility and ease of seeing. They are brightness, contrast, size, and time. Each of these factors is related to the amount of light on the seeing task.

1. *Brightness* is important, because if light did not make objects bright, vision would be impossible. Brightness is reflected light and is proportional to the amount of light reflected (reflection factor) from the object. For

example, a piece of gray paper with 8% reflection factor must be illuminated with ten times as much light as white paper with 80% reflection factor for equal visibility. Therefore, dark objects must be illuminated to a higher level than light objects.

2. *Contrast*, a brightness difference, is also essential to clear vision. For example, the black type on this white paper is easily read because there is a high brightness contrast between the type and the background. But if the black type were on a gray background, it would be more difficult to read because there would be less contrast. To improve the visibility on the gray background it is necessary to increase the amount of light. Higher illumination levels are required, therefore, for tasks of poor contrast.

3. *Size*. Large objects are easy to see. Small objects often are difficult to distinguish. By increasing the illumination level the apparent size increases and seeing becomes easier. Therefore, fine detail requires higher levels.

4. *Time*. It takes time to see. Clear vision takes place only while the eyes are stationary, or accurately following an object in motion. Research has proved that the speed of seeing increases as the illumination level is increased. For example, a road sign is easily read in the daytime at fairly high speed, but the driver must slow down to read the same sign under low nighttime illumination. Therefore, visual tasks which depend upon speed of vision should have high level lighting for maximum efficiency and safety.

QUANTITY OF LIGHT REQUIRED.—With most seeing tasks, visibility is a continuation of two or more of these seeing factors. By studying all contributing factors for various office tasks, the Illuminating Engineering Society has been able to set up minimum recommended illumination levels as shown in Figure 53.

QUALITY OF LIGHTING.—Quality of lighting is equally as important as quantity, for poor quality is just as harmful as insufficient quantity. Factors included in quality are prevention of glare, elimination of harsh shadows, uniform distribution, and proper control of brightness and brightness ratios.

THE PROBLEM OF GLARE.—The subject of glare deserves careful study. While the detrimental effects of glare are easily understood, actual elimination of all phases of glare has been very difficult. Detrimental glare in an office may be present in any or all of many forms.

1. *Direct glare* will result from high brightness luminaires located within the normal field of vision. It is of first importance, therefore, to select a type of luminaire with acceptable brightness characteristics in the direct glare zone—from the horizontal to 45 deg. below horizontal.

RECOMMENDED VALUES OF ILLUMINATION FOR OFFICE WORK	
	Minimum Operating Foot-candles in Service
DIFFICULT SEEING TASKS: Involving Discrimination of fine detail Poor contrast Long periods of time Such as Auditing and accounting Business machine operation Transcribing and tabulation Bookkeeping Drafting Designing	50
ORDINARY SEEING TASKS: Involving Discrimination of moderately fine detail Better than average contrast Intermittent periods of time Such as General office work (except for work coming under "Difficult Seeing Tasks" above) Private office work General correspondence Conference rooms File rooms Mail rooms	25
CASUAL SEEING TASKS: Such as Reception rooms Washrooms, and other service areas	10
SIMPLE SEEING TASKS: Such as Hallways and corridors Passageways Stairways	5

Figure 53. Recommended Values of Illumination for Office Work

2. *Window glare* (Fig. 54), which is another form of direct glare, can be unbearable if not properly controlled by some form of shading. Natural light, however, is very useful if the position of the worker is properly orientated in relation to the window. The best arrangement for comfortable seeing is when the worker faces away from the window at an angle such that daylight reaches the working surface from over his left shoulder.

3. *Reflected glare* (Figure 54) invariably exists in very detrimental forms that all too often are accepted, though annoying, as the "inevitable." The problem of reflected glare is more easily understood if the fundamental law of reflection is remembered. This law—the angle of reflection equals the angle of incidence—is the keynote to the solution of all reflected glare

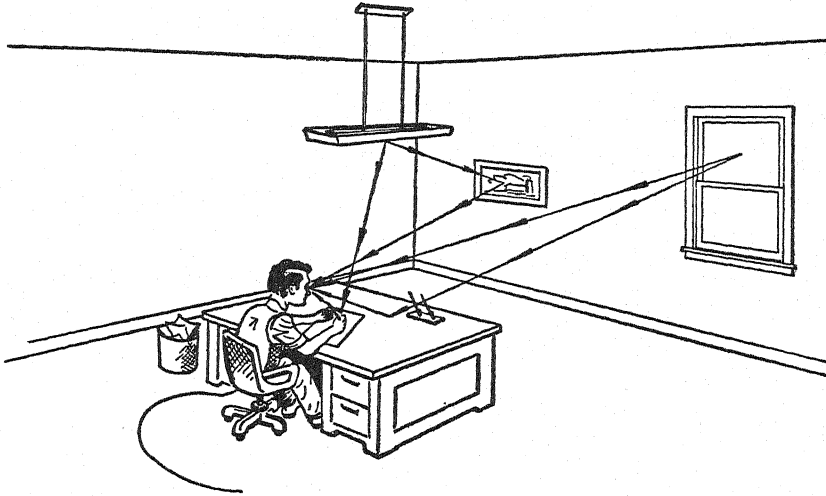


Figure 54. Reflected Glare from Specular Surfaces Causes Eyestrain

problems. Glass or polished desk tops, glass partitions, or glass-covered pictures are common causes of reflected glare.

Glass desk tops should not be used as they invariably cause detrimental reflected glare which may be more serious than direct glare afforded by the luminaire. Also dark desk tops create a condition of discomfort because of the high brightness contrast between bright papers and the dark tops. It is recommended that the desk tops be of a light color, simple pattern and dull finish, with 20% to 30% reflection factor.

Reflected glare from glass partitions can be very disturbing, for it is often the reflection of direct sunlight. To eliminate reflected glare from existing glass partitions, the glass should be replaced with wallboard or painted with a light color, non-glossy wall paint. If it is found that the glare occurs at a localized position on the glass, this spot may be covered with a chart, map, or some non-glossy decorative material.

Reflected sun and sky glare from glass-covered pictures is likewise very serious but can easily be corrected by properly tilting the picture or by changing its location.

The above factors are not a part of the lighting system, but they may mean the difference between comfortable and uncomfortable seeing, and

the interior decorator, architect, and lighting engineer must all realize their effects.

Lighting Methods.—Both natural and artificial illumination must be considered because most office owners and occupants are interested in making the best use of daylight facilities. It should be realized, however, that even the highest daylight illumination indoors is far less than outdoor lighting under the open sky. Also, daylight from conventional clear glass windows, though of high intensity near the windows, drops off rapidly only a few feet away.

Natural lighting of offices is affected by a number of factors which govern the amount of daylight admitted. Given a certain intensity of outside illumination, the amount admitted to the interior will depend upon the type of glass; the size, shape and position of the window openings; the ratio of window area to floor area; the ratio of the height of windows to depth of room; the window shades; and the presence of outside objects such as adjacent trees and buildings which restrict the sky area visible at the work.

An added complication in the case of daylight is that the illumination at any point in a room is not a constant quantity since it varies with the external illumination according to the weather conditions, the time of day, and the season of the year. Therefore, the artificial lighting should be completely adequate for both day and night conditions.

Artificial Lighting.—In current lighting practice there are five major systems of light control which are differentiated by the manner in which light is directed toward a working area, as shown below. It is important to select the proper system of light control for each specific application because quality of light and operating economy vary widely for these different systems.

CLASSIFICATION OF LUMINAIRES		
CLASSIFICATION	APPROXIMATE DISTRIBUTION OF LUMEN OUTPUT	
	<i>Upward</i>	<i>Downward</i>
Indirect.....	90-100%	0-10%
Semi-indirect.....	60-90	10-40
General diffusing.....	40-60	40-60
Semi-direct.....	10-40	60-90
Direct.....	0-10	90-100

Figure 55. Classification of Luminaires

DIRECT LIGHTING.—When 90% to 100% of the luminaire output is directed downward the system is called direct, as shown in Figure 56. For fluorescent lamps, direct recessed troffers or surface units are available for office applications. With lamps properly shielded, this form of lighting is satisfactory for general office work where specular reflections, that is, bright spots caused by reflected light, are not a serious factor. Disturbing

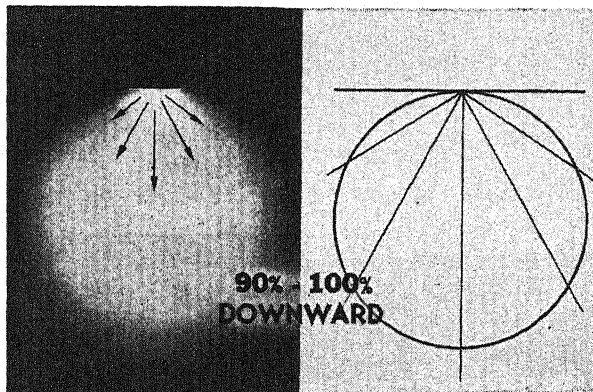


Figure 56. Direct Lighting

When 90% to 100% of the light is directed downward in angles below the horizontal, the system is called direct.

line shadows may result, however, and reflected glare will be present from glossy surfaces. When troffers are installed, light desk tops and floor coverings should be used to redirect light to the ceiling to relieve harsh brightness contrasts. (Figure 57.)

Direct incandescent lamp luminaires of the conventional industrial types should not be used for any office work areas because direct and reflected glare as well as harsh shadows will result.

SEMI-DIRECT LIGHTING.—When 60% to 90% of the light output is directed downward it is called semi-direct, as shown in Figure 58. With fluorescent lamps this form of lighting is particularly suitable for lobbies, corridors, toilets, and stockrooms. Semi-direct units, such as shown in Figure 59, are suitable for small offices, but are not generally recommended for large offices because accumulative direct brightness may cause annoying glare.

Semi-direct incandescent equipment is usually the open-glass shade type, and is seldom used in modern lighting practices because the bare lamp is not sufficiently shielded.

GENERAL DIFFUSE AND DIRECT-INDIRECT LIGHTING.—This classification refers to systems where 40% to 60% of the luminaire's output is directed

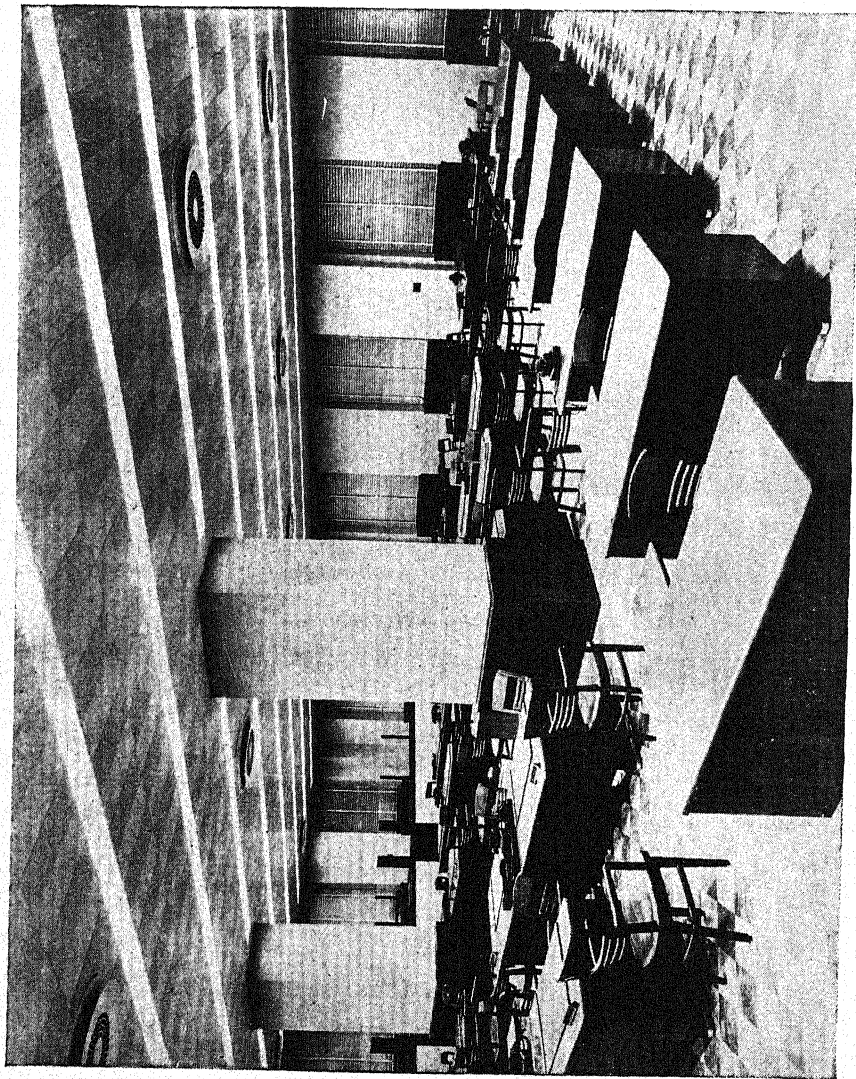


Figure 57. Typical Fluorescent Troffer Lighting System in a Large General Office

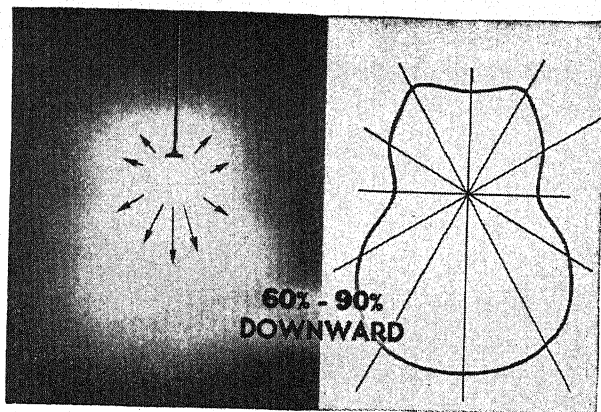


Figure 58. Semi-Direct Lighting
When 60% to 90% of the light output is directed downward it is called semi-direct.

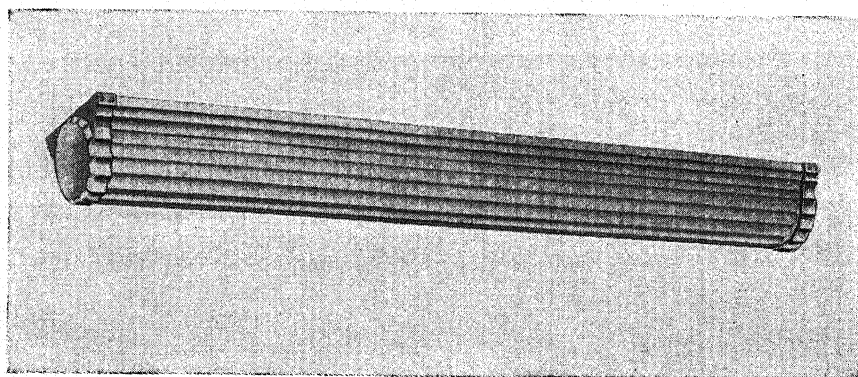


Figure 59. Example of a Typical Semi-Direct Fluorescent Luminaire with a Diffusing Glass Shield

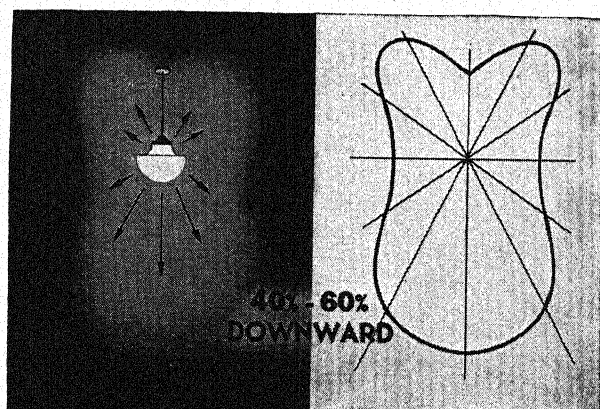


Figure 60. General Diffuse Light Control
When 40% to 60% of the light is directed downward, the designation is known as general diffuse or direct-indirect.

downward (Figures 60 and 61). This direction of the light can be accomplished by two different types of equipment. With incandescent lamps, enclosing globes are used to provide general diffuse illumination (Figure

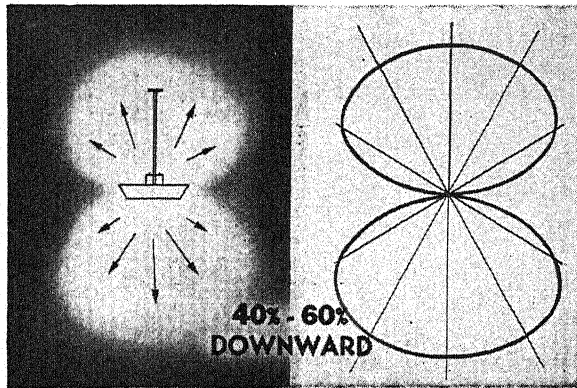


Figure 61. Distribution from a Direct-Indirect System

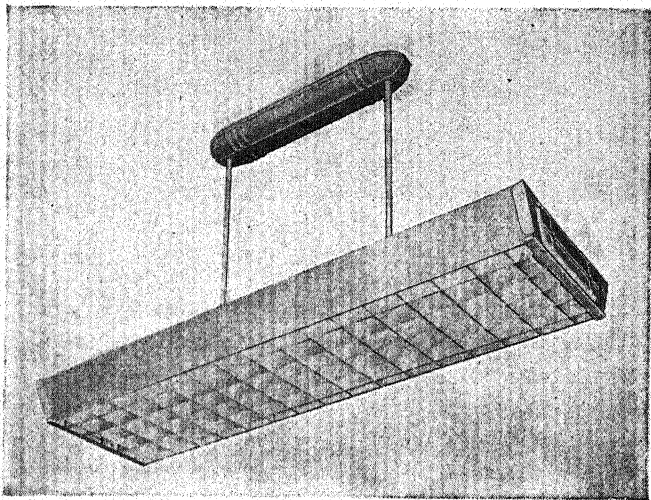


Figure 62. A Typical Direct-Indirect Fluorescent Luminaire for Suspension Mounting and for 4 40-watt Fluorescent Lamps

Note the egg-crate louvers in the bottom which shield the lamps from view at normal angles.

60). The brightness of enclosing globes is relatively high, so they should be used only for stairways, corridors, toilets, and stockrooms.

The second type, the direct-indirect (Figure 61) is used with fluorescent lamps (Figure 62) and is well suited to office lighting because lamps are

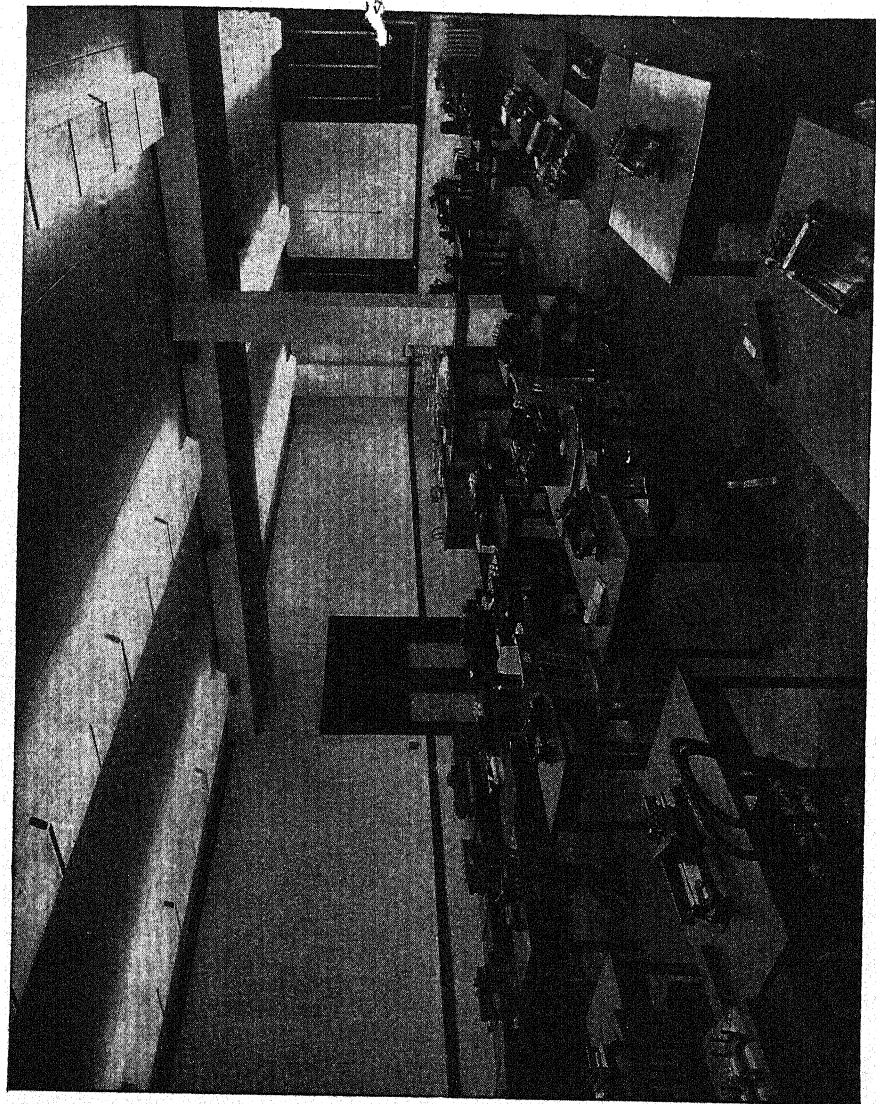


Figure 63. The Area Lighting of This Accounting Department as shown resulted in increased efficiency of 12% to 15% by actual tabulation account on the machines.

well shielded, ceiling is illuminated, and high illumination levels can be obtained at moderate operating cost (Figure 63).

SEMI-INDIRECT LIGHTING.—Luminaires of this classification direct 60% to 90% of the light upward (Figure 64), and illumination is largely dependent upon the reflection factor of the ceiling to redirect the light. Thus it is particularly important to maintain a light ceiling for maximum efficiency. The quality of light from a semi-indirect system is good because luminaires have a low brightness, shadows are minimized, and reflected glare is generally not a problem.

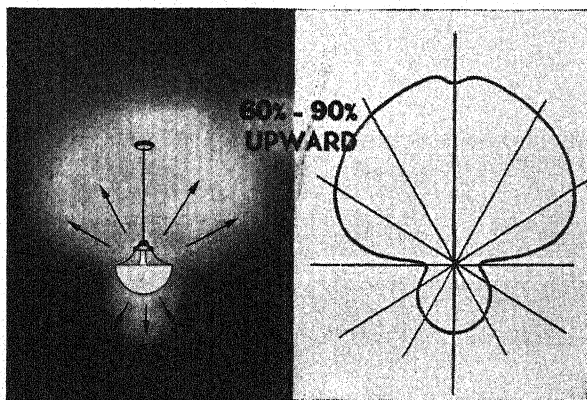


Figure 64. Semi-Indirect Lighting

When 60% to 90% of the light is directed upward, in angles above the horizontal, the system is called semi-indirect.

Frequent maintenance is a requisite for continued satisfaction from this type of lighting. Either incandescent or fluorescent semi-indirect equipment is suitable for office lighting.

INDIRECT LIGHTING.—Here 90% to 100% of the luminaire output is directed upward (Figure 65), and the ceiling becomes literally a large-area, low-brightness light source. Shadows and direct glare are practically eliminated and reflected glare is reduced to a minimum. As in the case of semi-indirect lighting, it is vital to maintain high reflectivity of the ceiling and to enforce a regular and frequent maintenance schedule.

When incandescent lamps are to be used, luminous indirect luminaires are recommended for general office lighting (Figure 66) to provide illumination levels up to 30 or 35 foot-candles. Incandescent indirects are generally not practical for over 35 foot-candles because the heat emitted may cause

discomfort and ceiling brightness may be excessive and cause annoying glare.

Fluorescent indirects provide the ultimate in diffusion, but are not commonly used because of their low utilization of light and high maintenance cost. Direct-indirect or semi-indirect fluorescent equipment is more practical for offices because the lower brightness of the fluorescent lamp permits a greater direct component of light with quality of illumination comparable to incandescent indirects.

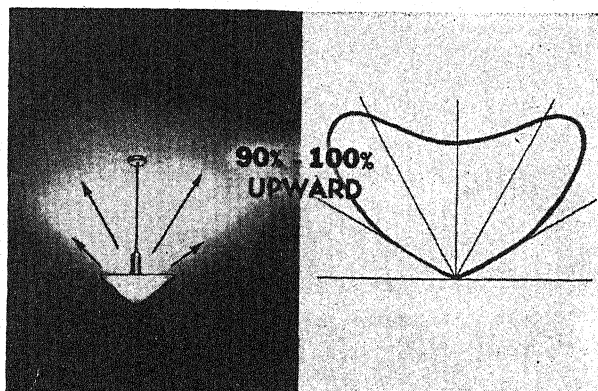


Figure 65. Indirect Lighting

When 90% to 100% of its output is directed upward, the luminaire is called indirect.

Lighting General Office Areas.—Office areas may be classified as general offices, or small or private offices. For the general office, lighting must be uniformly distributed to satisfy all possible desk locations. Where continuous row fluorescent equipment is used, two rules should be followed: direct troffer units should be run at *right angles* to the line of normal sight; direct-indirect luminaires should be installed *parallel* to the line of normal sight.

The relation of ceiling height to mounting height of luminaires is important as far as appearance is concerned. In general, large areas with low ceilings have a neater appearance when luminaires are recessed or ceiling mounted. For high ceilings suspended units are satisfactory since they fit into the general proportions of the area.

Figure 67 gives the approximate illumination levels that can be expected from several different types of office lighting systems. More accurate data on specific luminaires can be obtained from a lighting engineer or equipment manufacturer.

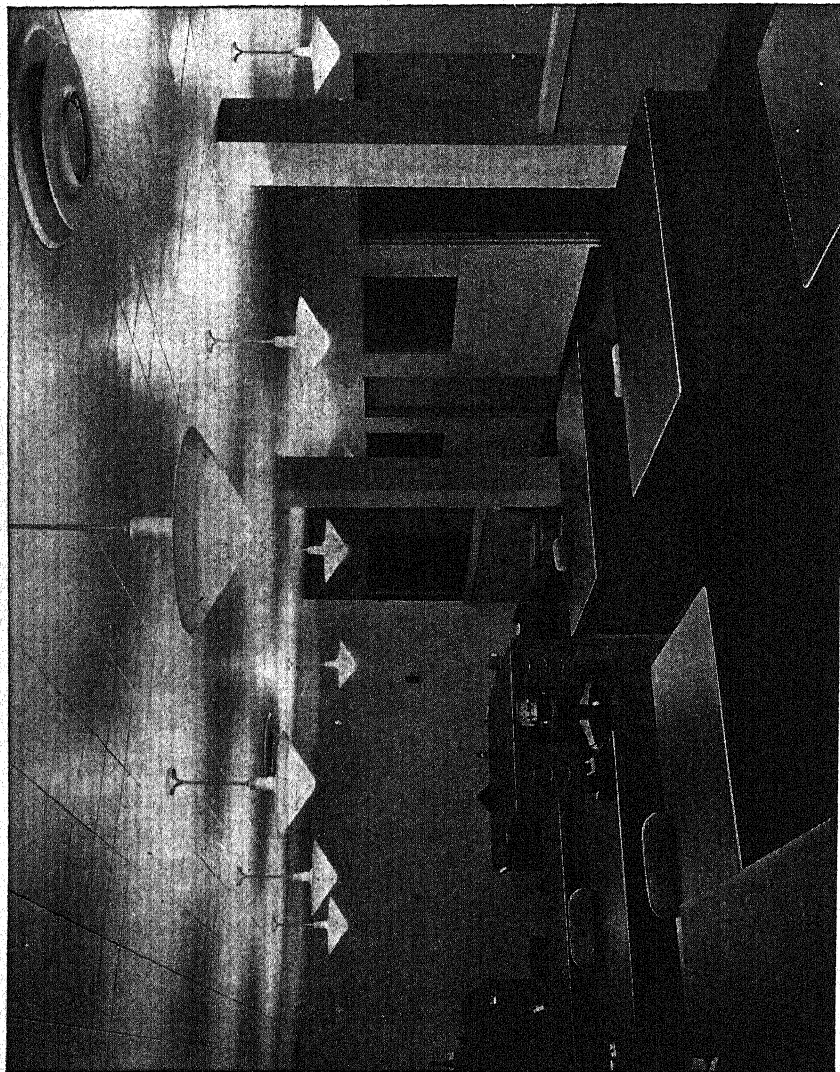


Figure 66. Incandescent Lighting System

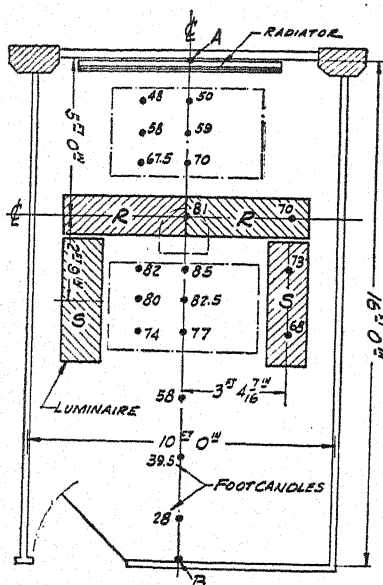
Supplies 30 foot-candles of illumination for a large general office by means of luminous indirect luminaires. This type of equipment is often installed where only direct current is available. It also may be an expedient where there is a desire for low initial cost of equipment and where the wiring capacity is adequate.

DATA FOR ESTIMATING AVERAGE ILLUMINATION IN OFFICES							
ROOM PROPORTIONS*	APPROXIMATE FOOT-CANDLES IN SERVICE						AREA PER LUMINAIRE (Sq. Ft.)
	FLUORESCENT LUMINAIRES				INCANDESCENT LUMINAIRES		
	Direct Troffer 2-40 W. per 4' unit	Direct-Indirect 2-40 W. per 4' unit	Direct-Indirect 4-40 W. per 4' unit	Semi-Indirect 2-40 W. per 4' unit	Indirect 1-500 W. per unit	Indirect 1000 W. per unit	
Wide.....	59-69	54-65	—	43-46	—	—	25
Medium.....	46-54	41-50	—	32-39	—	—	
Narrow.....	33-43	30-37	—	21-28	—	—	
Wide.....	46-54	42-51	84-102	33-38	—	—	32
Medium.....	36-42	32-39	64-78	25-30	—	—	
Narrow.....	26-33	23-29	46-58	16-22	—	—	
Wide.....	30-34	27-32	54-64	21-24	50-58	—	50
Medium.....	23-27	20-25	40-50	16-19	36-44	—	
Narrow.....	17-21	15-19	30-38	10-14	22-32	—	
Wide.....	23-27	21-25	42-50	17-19	39-45	—	64
Medium.....	18-21	16-20	32-40	12-15	28-34	—	
Narrow.....	13-17	12-14	24-28	8-11	17-25	—	
Wide.....	19-22	17-20	34-40	—	31-36	—	80
Medium.....	15-17	13-16	26-32	—	23-30	—	
Narrow.....	10-13	9-12	18-24	—	14-20	—	
Wide.....	15-17	13-16	26-32	—	25-29	53-61	100
Medium.....	12-13	10-13	20-26	—	18-22	38-46	
Narrow.....	8-11	7-9	14-18	—	11-16	23-34	
Wide.....	—	—	22-26	—	20-23	42-49	125
Medium.....	—	—	16-20	—	14-18	30-37	
Narrow.....	—	—	12-15	—	9-13	18-27	
Wide.....	—	—	18-22	—	17-19	35-40	150
Medium.....	—	—	13-16	—	12-15	25-31	
Narrow.....	—	—	10-12	—	8-11	15-22	
* Wide —When room width is four or more times the ceiling height. Medium—When room width is approximately twice the ceiling height. Narrow —When room width is approximately equal to the ceiling height.							

Figure 67. Data for Estimating Average Illumination in Offices

Based on light walls and ceiling and on good maintenance conditions.

Lighting Small or Private Offices.—Lighting application for small or private offices varies somewhat because of the small size of the space and the specific arrangement of furniture. Whenever possible, luminaires should be arranged in relation to the location of the desks or other specific work points. To prevent annoying direct or reflected glare, luminaires should be located around, but not in front of, the person working at the desk or table, as in Figures 68a and 69. This arrangement definitely makes a non-sym-



CEILING HEIGHT - 12'-3"

REFLECTION FACTORS

CEILING (WHITE) — 80%

TOP OF SIDE WALLS — 80%
(21" FROM CEILING)

DADO (DARK GRAY GREEN) — 35%
(42" FROM FLOOR)

BALANCE OF WALLS — 65%
(LIGHT GRAY-GREEN)

UNIT-LW-160 (28" OVERALL LENGTH)
LAMP BURNING HOURS = 1000

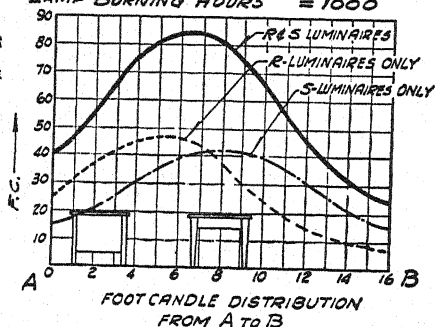
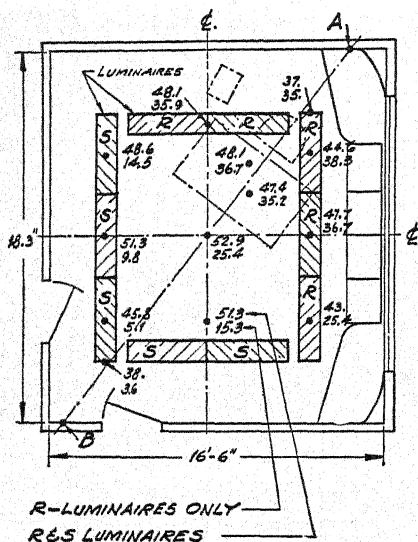


Figure 68a. Placing the Luminaires

To eliminate reflective glare luminaires should be around but not in front of the person working at the desk. Note that the maximum intensity is at the location of the table and desk.



UNIT - RECESSED TROFFER, 2-40 WATT

CEILING HEIGHT - 10'-6"

REFLECTION FACTORS

CEILING (ACOUSTIC) = 70%

WALLS (LIGHT GREEN) = 65%

DADO (LIGHT OAK) = 40%

LAMP BURNING HOURS = 400

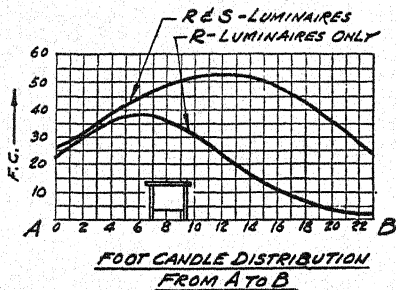


Figure 68b. Flexibility in Lighting

By forming a rectangle or square design with 2-lamp, 40-watt troffer units, flexibility in lighting can be had by separately switching the "R" and "S" units. With all luminaires turned on for conferences, an average of 43 foot-candles from A to B was obtained. To eliminate annoying glare to the person working at the desk, luminaires "S" should be turned off, thus having only the "E" luminaires lighted. Illumination on the desk reduces slightly, while the average is reduced considerably.

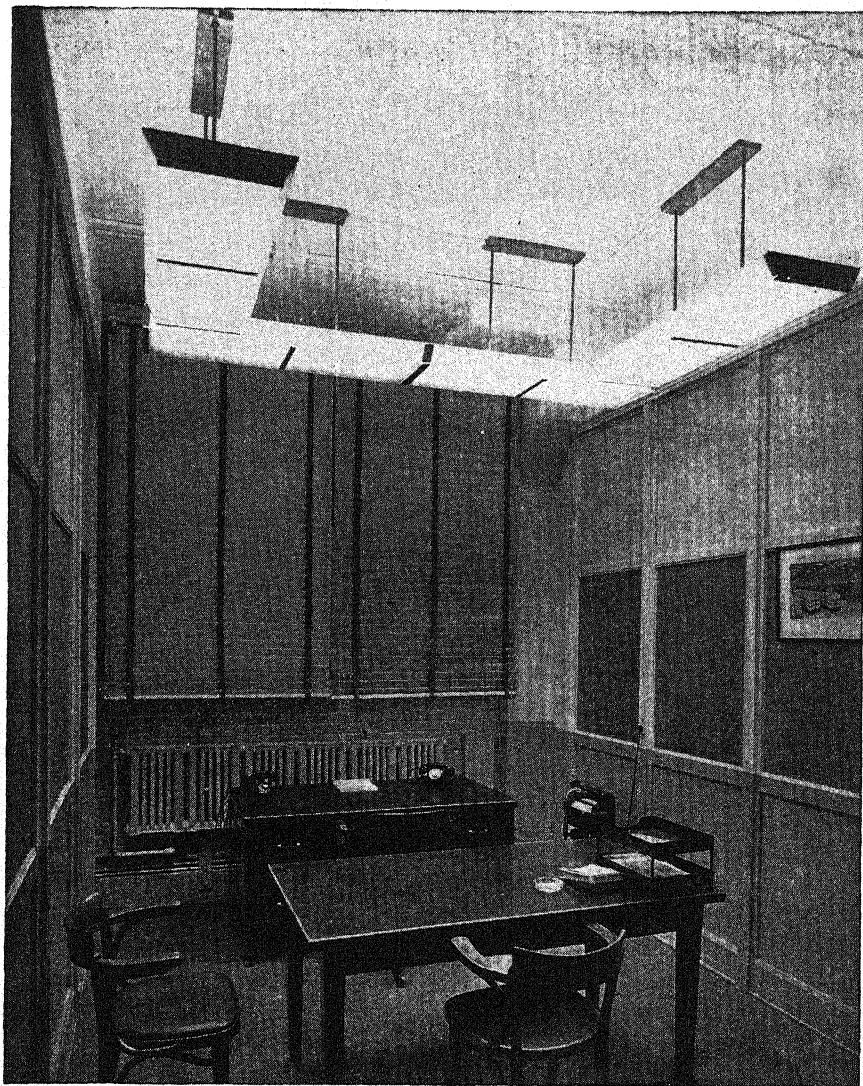


Figure 69. The Installed Layout of Figure 68a

Clearly indicates that the lighting is installed to do a "specific lighting" job providing 85 foot-candles with maximum seeing comfort to the person working at the table.

metrical layout, but there is usually nothing else symmetrical in the office, so a related functional plan results.

When luminaires are properly placed for a specific desk location, maximum illumination is furnished at the work points (note curve in Figure 68a) and reflected brightness is directed away from the worker.

Where there are several desks in the room, or where desk locations are indeterminate, a symmetrical lighting layout may be necessary, but flexibility can be obtained by separate switching of individual units or grouping of units (Figures 68b and 70).

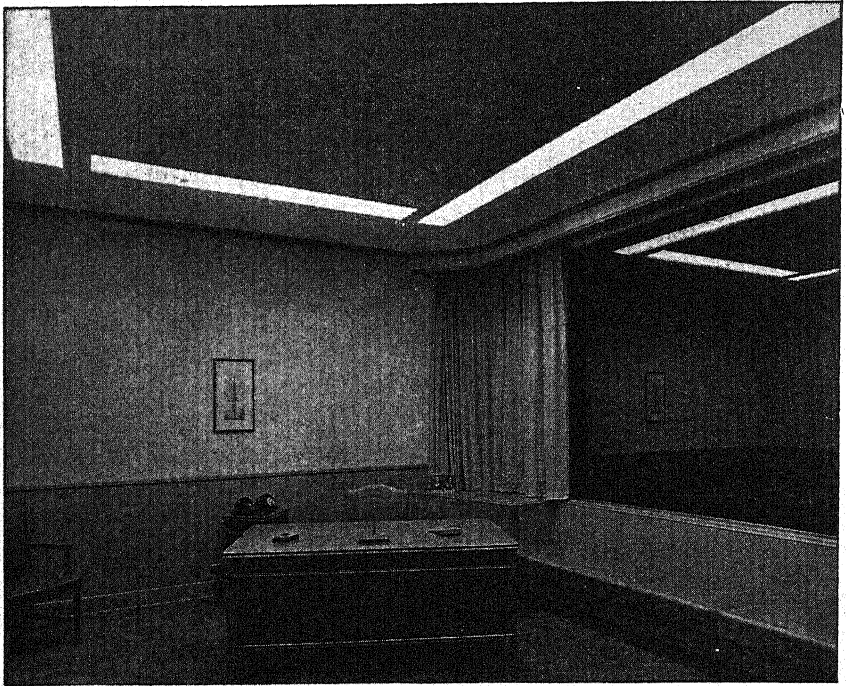


Figure 70. Executive Office Lighting Installation Shown on Figure 68b

How to Judge a Luminaire.—When selecting a lighting unit, the following questions will be helpful in analyzing the various equipments available. An unbiased “Yes” answer to each question will generally lead to an appropriate choice.

1. Will the luminaire serve the *required purpose*?
2. Is the *appearance* neat and in keeping with surrounding architecture and decorations?
3. Does the luminaire produce maximum *efficiency* for the required purpose?
4. Are the *lamps properly shielded*?
5. Will the visible *brightness* of the luminaire be comfortable in the intended surroundings?
6. Is the luminaire *well constructed* electrically and mechanically to serve the intended purpose?

7. Is the luminaire constructed of *permanent durable materials*?
8. Can the luminaire be *easily relamped and cleaned*?
9. Is the *cost* commensurate with the results and effects to be obtained?

Importance of Interior Finishes.—The treatment of ceilings, walls, floors, and furnishings has a distinct bearing on the efficiency, comfort, and appearance of the illumination. Thus, in an interior requiring good lighting for comfortable seeing, the following principles should be observed:

In general, light colors should be used for all large area surfaces. Bright or dark colors can be used in very small quantity for accent. By using light-colored surfaces, highest illumination will be obtained, harsh shadows will be eliminated, and seeing comfort will be improved. All in all, light colors create a cheerful, invigorating atmosphere in which to work, play, or relax. Large area surfaces should have a dull or eggshell finish to eliminate specular reflections, or bright spots, from light sources.

The "lightness" of a surface is determined by its *reflection factor* which is a measure of the percentage of light reflected or redirected by the surface.

The lightest color of the decorative plan should be the ceiling. White or very light ivory is preferable. The upper walls should not be white but should be a light color which is pleasing and in keeping with the decorative plan.

Light-colored floors will also improve seeing conditions and lighting efficiency. If recessed direct lighting is used, light floors are essential to reflect light upward and eliminate a dark ceiling effect.

It is very important to make the selection of colors under luminaires which have the color qualities of lighting to be used. A color selected in a store under incandescent lighting may not be suitable at all under natural daylight or fluorescent lighting.

Acoustic Materials.—Sound control is important in offices, hospitals, auditoriums, and cafeterias. The application of acoustic material is a job for an acoustical engineer. The lighting engineer, however, is interested in the selection of this material because its surface character will affect the lighting. Both dark and light materials are available, painted or unpainted, and with various surface textures. Acoustical treatment is generally applied to the ceiling, so a high light reflection factor is desirable. Also, the surface texture should be of a kind which can be cleaned or repainted.

Furnishings.—From the standpoint of seeing comfort, dark, shiny furnishings are as obsolete as the horse and buggy. Light-colored furniture with non-glossy surfaces is best. Business machines finished in light, non-specular colors are highly desirable. Shiny nickel-plated keys and handles are sources of reflected glare and should be eliminated.

Maintenance of Lighting Equipment.—No lighting system is any better than its maintenance. Therefore, it is essential to plan for servicing of lighting equipment when the system is designed. A maintenance program should be followed which includes prompt replacement of lamp outages and regular cleaning of luminaires.

Dirt alone can reduce illumination 50% or more if cleaning is neglected. The cleaning of units should include all lamps, reflectors, and other transmitting or reflecting parts. Luminaires should be washed, not just dry wiped.

The combination of a well-planned system, properly installed, plus regular maintenance, is the key to adequate office lighting.

GLOSSARY OF ILLUMINATION TERMS

Lumen—is the unit quantity of light. It is defined as the amount of light which falls on an area of one square foot every point of which is one foot from a source of one candle power.

Foot-candle—is the unit which designates the amount of light on an area. One lumen covering one square foot produces one foot-candle. If all the light from a given source fell upon a specified area, the average of illumination in foot-candles would be the total source lumens divided by the area. Foot-candles are measured with a light meter and may be in a horizontal or angular or vertical plane, but generally office illumination is specified as the number of foot-candles in a horizontal plane 30 inches above the floor.

Reflection factor—When a quantity of light strikes a surface and is turned back, it is said to be reflected. The reflection factor of a surface is the ratio of the light reflected to the amount of light directed on the surface.

Brightness—is the state of emitting, reflecting, or transmitting light. Brightness of a surface depends upon the amount of incident light and the reflecting or transmitting characteristics. Brightness is specified in terms of foot-lamberts. The brightness of a surface in foot-lamberts equals the foot-candles incident upon it times the reflection factor. In other words, brightness is reflected foot-candles.

Noise Control

Pioneer Experimentation.—Sound conditioning of offices, following the development and availability of acousti-materials, was a slow development. The majority of persons awaited the results of pioneer experimentation by those few who were willing to risk a reasonable investment to prove something which they believed would develop increased efficiency and reduce costs. A considerable number of the earlier acousti-installations in business offices were made almost solely on the basis of anticipated improved appearance of ceilings and walls; because such installations often aided in improving light distribution from indirect type unit installations; and because a certain amount of unmeasured and indeterminate "comfort" was experienced following such installation.

No attempt was made in connection with these pioneer installations either to measure or determine, from a work improvement or payroll savings standpoint, what benefits, if any, were directly traceable to acousti-treatment. It was a full decade or more before any company was either willing to or could provide factual data substantiating the belief that sound conditioning in the office did provide tangible benefits which would unquestionably pay a worthwhile return on the investment represented in such an expenditure.

Ill Effects of Noise.—The ill effects resulting from noise existing within the office have a definite reaction on employee well-being and the quality and quantity of work performed. This conclusion is accorded worthwhile substantiation by eminent authorities in the field of human welfare research.

Noise interferes with the efficiency of the worker. It increases the tension and makes concentration upon certain tasks difficult.³

Injury measurable and immeasurable from noise as now widely attends human life, is real and not a matter for speculation. Relief from noise is procurable.⁴

Noise lowers all of our faculties. It slackens and dulls our mental processes. It clouds judgment, reduces the precision of our action and decreases general efficiency.⁵

Noise exacts even a greater toll upon the nervous systems of mental workers and others who are noise sensitive.⁶

Noise is in the same class with bad ventilation and poor lighting in its effect on human efficiency.⁷

These are strictly professional expressions of opinion based on long and exhaustive study of the effects of noise on the individual.

Contrary to general opinion, noise volume does not necessarily have to be great to have harmful effect on both worker and work performance. Any specie of noise, which is of sufficient intensity to attract either conscious or subconscious recognition of its existence, has a measurable effect on the individual susceptible to it. Strangely enough, many workers are less conscious of this fact than of the ill effects of poor lighting, wrong temperatures, or ineffective air conditions. This is undoubtedly the principal reason why business has not accorded noise control equal consideration with other important physical factors associated with the office. When conclusive facts and figures concerning the reactions of office personnel to noise were available its abatement began to receive special attention. The recognition accorded noise and the seriousness of the effects upon the individual are usually in direct ratio to the intensity and prolongation of the noise volume; the

³ Dr. Foster Kennedy, in a report published by the Department of Health, New York City.

⁴ Dr. Carey P. McCord, *Journal of American Medical Association*.

⁵ Dr. James L. McCartney, Neuro-Psychiatrist, in the *Pennsylvania Medical Journal*.

⁶ Dr. Vern O. Knudsen, Dean of Graduate Division, U.C.L.A.

⁷ Dr. Paul E. Sabine, Director, River Bank Laboratories.

frequency of the reoccurrence, if the noise is of a non-continuous type; and the natural noise sensitivity of the individual affected.

Eliminating or Reducing Noise.—Sound is dependent on both space and air waves as a traveling medium. Therefore, the cubic volume of individual offices and the type, quality, and amount of ventilation and air conditioning afforded these offices are definitely associated with noise conduction (dispersion). A comprehensive discussion of such technical factors in noise control is given in the brochure "Less Noise—Better Hearing," by Hale T. Sabine, Chief Acoustical Engineer, The Celotex Corporation, of Chicago. Another pamphlet published by the same organization is "Sound Conditioning For Office Workers."

The amount of consideration now given noise control in new office planning, and in connection with the remodeling and renovation of present office layouts, is on a parity with that accorded modern sanitation, heating, lighting, and floor covering requirements. It is a definite part of the initial program planning and included in the building costs as a specific item of expense of more than ordinary importance.

Case results attest to the benefits brought about by a study and correction of the causes of avoidable noise.

A most illuminating and convincing article⁸ on the results and benefits secured from one of the earlier, sizable installations of acoustic materials in a large business office is presented in the case of the Aetna Life Insurance Company, of Hartford, Connecticut. The summarized benefits and savings claimed were

1. Noise level reduced $14\frac{1}{2}\%$
2. Efficiency of employees increased 8.8%
3. Typists' errors reduced 29%; machine operators' errors 52%
4. Employee turnover decreased 47%
5. Absences decreased $37\frac{1}{2}\%$
6. Payroll costs reduced through decreased number of employees required

The foregoing results were obtained during a two years and four months' practical work operations study by the Aetna Company, with all ensuing tabulations and recorded statistics carefully analyzed and checked by management prior to acceptance. The results were, therefore, factual and not based on estimates except where controlled conditions did not prevail.

At about the same time the American Optical Company, of Southbridge, Massachusetts, made an initial experimental installation of acousti-material in its extremely noisy tabulating machine department. Because of the intensity and nature of the noise volume, both ceilings and walls were treated.

⁸ P. B. Griswold, *The Bankers Service Bulletin*, Vol. 9, No. 6.

The request for relief from the objectionable condition was not made by the workers within that particular division but by those located adjacent to it, whose work required a considerable amount of concentration and the exercise of coordinated mental and calculating machine operation effort. Following completion of the installation, production increased 12.8% within the department treated; the error factor was reduced by 37%; less end-of-the-day work fatigue was apparent; employee disposition reached a new high; and morale improved generally.

It is the office executive with the non-acousti-treated office who should be most concerned with determining first, just how bad the noise situation is, especially in those departments housing the greatest number of employees and the largest amount of mechanical equipment. Any acoustical engineering firm will be glad to provide this information without obligation. Usually, it is a relatively simple matter to determine with the aid of an audiometer.

The type and grade of sound conditioning material to use, the amount required, and the actual areas to be treated are dependent upon the type and severity of the noise and the percentage of reduction (maximum or less) desired. Generally speaking, ceiling treatment alone will accomplish the desired reduction, and it is only in instances of extreme noise generating areas that the additional treatment of walls and column supports (to shoulder level) is necessary.

The answer to whether or not it is economically advisable to sound condition all departments of an office, or to restrict such treatment to those housing the greatest number of workers and largest amount of the noisier type of mechanical equipment, can perhaps be found in the conclusion reached by the Aetna Company following its study of the subject. This study demonstrated that ceiling treatment was justified in all departments regardless of noise volume, so as to reduce all irregular noises as much as possible, in addition to those common to the regular work performance without regard to the severity of these latter noises. It was further pointed out that acousti-treatment of office areas permitted placement of office machines in locations most convenient to required work performance instead of grouping them together in more remote locations, oftentimes because of the mass noise generation factor.

Costs in New versus Old Construction.—When a new building is to be constructed, the expense of acousti-treatment is seldom as great as it is when applied to old construction. Likewise, there is no interruption of work performance and the dirt, confusion, and inconvenience generally associated with old construction treatment are avoided. The installation time in an old building is usually longer. The benefits to be derived are of such tangible value, however, that a sound conditioning program is highly advisable even with old construction. Added benefits usually are secured

from the installations, such as improved distribution of lighting, and insulation against penetration of cold and heat.

Attacking Noise at the Point of Generation.—While acousti-treatment of interiors is the most practical method of reducing noise volume of all types to a maximum degree, much can be accomplished in various other ways by attacking noise generation at its source. The following are examples:

1. Automatic door closers eliminate slamming of heavy doors and save wear and tear on both doors and framework. Tight fitting mouldings to hold door glasses firmly in place, and well-oiled hinges are also of benefit.

2. Partially muted phone bells in rooms containing a large number of heavily used instruments can accomplish a worthwhile amount of noise reduction.

3. Educating employees to converse in ordinary conversational tones, in lieu of unnecessarily loud talking, will provide marked reduction in noise volume. Mass conversation accounts for a larger percentage of general noise volume in the office than is commonly believed to be the case. Check this in any public gathering place where a number of people are brought together in a comparatively restricted area.

4. Floor covering materials applied to wood, tile, or cement floors bring about further noise reduction.

5. Ball-bearing, rubber-tired handtruck wheels reduce noise volume and save wear and tear on floors and floor coverings. Refinishing expense is reduced, also.

6. Enclosing pneumatic tube receiving stations with felt-lined, hood-style covers reduces noise resulting from carrier discharge.

7. Use of noiseless style typewriters, and pieces of heavy felt material placed underneath non-noiseless machines, and beneath other types of office machines operated on desk and table tops will provide additional noise reduction.

8. Non-metal and rubber-castered swivel chairs, and glider-equipped side chairs, create much less noise when moved about. The majority of office workers move their chairs about several hundred times daily, as can be readily determined by a short period of observation.

9. Swivel and tilting chair mechanisms should be oiled, tightened, and adjusted periodically. Such maintenance reduces noise creation, prolongs the life of the chair, and adds to the comfort of the user.

10. Keeping doors closed which open into main corridors which are heavily trafficked and served by elevators excludes a considerable amount of noise.

11. Open windows during the warm weather months may admit considerable noise volume of various types. Air conditioning renders window

opening for additional air admission or improved ventilation unnecessary.

12. Efficient desk and equipment placement from a spacing standpoint aids in spreading noise volume over a wider area so that the noise is less pronounced at any given point.

13. Efficient planning of work routine, which reduces to a minimum the amount of required walking about, both increases efficiency and reduces noise volume.

Other noise reduction improvements of an allied nature can be discovered by the alert-minded, noise-conscious individual.

Any of these common sources of noise generation, considered as but single, individual noise units, are, in themselves, small. However, when they are all producing noise at the same time, they build up an amazingly large, collective noise volume in most office departments throughout the greater part of the work day, regardless of the type of work performance.

Safety and Sanitation

Objective of an Organized Program.—Safety and sanitation, as they apply to office administration, have a common objective—the physical well-being of the employee. Office work is relatively safe as compared to many other vocations and, for this reason, safety programs and appropriate safety rules and training often are neglected, resulting in a distinct lack of safety consciousness on the part of office personnel. The office division of the enterprise should always be included in the safety program and the office employees should have a representative on the safety committee. Periodic safety meetings should be scheduled and well-planned programs should be developed. The subjects for discussions should have a practical application in the work and office life of the group attending these meetings.

Safety.—The practice of safety has for its purpose the prevention of injury. The most common office injuries may be classified as follows:

INJURIES AS A RESULT OF FALLING.—Stairways should be properly constructed and maintained. Treads should be constructed of anti-slip material. Adequate lighting and handrails should be provided. Running and playfulness on stairways should be forbidden. Transporting heavy and bulky packages or boxes up or down stairways should be permitted only after all precautionary measures have been taken to avoid accidents.

Many floor materials become hazardous under certain conditions. Many injuries occur on rainy days as a result of employees wearing wet shoes rushing into office buildings. Suitable anti-slip runners should be provided. Polished floors should be properly treated to eliminate the slipping hazard. Pencils, carelessly left on floors, may be the cause of injuries from falling.

Care should be exercised to keep floors free of oil, grease, soap, water, or any other material that would create an unsafe condition.

Telephone, power outlets and extension cords are common causes of injuries resulting from tripping. Outlets should be constructed flush with walls or floors. Extensions should be enclosed in conduits along the walls or made flush with floors. Temporary extension cords should be adequately marked or protected. Boxes, books, bundles, or other objects left in or near aisles create a tripping hazard. The practice of placing such objects in walking areas should not be tolerated.

Periodic inspection should be made to insure that chairs, stepladders, and any other such equipment used by employees are maintained in a safe condition. Employees should not be allowed to use makeshift equipment for climbing.

INJURIES FROM USE OF EQUIPMENT AND DEVICES.—Minor cuts or abrasions are often neglected and develop into serious injuries. All such injuries should be given first-aid treatment. The use of razor blades without holders for cutting paper, sharpening pencils, and other cutting operations in the office should be discouraged. Any paper cutting device used in the office should be equipped with a guard or shield to prevent injury to the operator's fingers. Only trained operators should be permitted to use such equipment. Cuts from the handling of paper are frequent causes of injuries in the office. Employees should be taught to pick up papers at the corners and not at the side. Sealing strips on envelopes or other gummed papers should not be moistened by licking with the tongue. This practice often results in cuts on the lip or tongue. Broken glass should be carefully packaged and marked for disposal. Sharp edges on steel equipment and splintered edges on wooden equipment should be removed. Pin-pricks caused by the use of pins for fastening sheets of paper together, although considered trivial, often become infected and result in serious injury. When necessary to use pins for this purpose, they should be inserted so that the points are left concealed between the fastened papers. The use of stapling machines for fastening papers is safer and more efficient. A device made for the purpose, and not the fingernail, should be used for removing staples when it is necessary to unfasten papers that have been stapled together. Serious infections have been known to occur from skin punctures underneath the fingernail. A pen placed in a holder on the desk with the point toward the user has been known to cause the loss of sight in one eye. Extreme caution should be exercised in the handling of scissors, knives, letter openers, and other sharp instruments in congested aisles, elevators, or other areas in the office.

Injuries may result from lifting such items as adding machines, typewriters, books, bundles, and packages unless care is exercised by those

assigned to such work. Employees should be trained how to lift, using the leg muscles rather than the back muscles. Under no circumstances should clerical workers be expected or allowed to undertake physical assignments beyond their abilities. Pushcarts or other suitable devices should be provided for transporting heavy or unwieldy packages, books, records, or equipment.

Exposed revolving equipment such as motor belts, gears, pulleys, and electric fans are frequent causes of injuries to the office worker. Such hazards should be guarded. Only employees specially trained should be allowed to operate mechanized equipment.

INJURIES AS A RESULT OF COLLISIONS.—Injuries caused by striking a leg on open or partly open desk drawers are common occurrences among office workers. Serious knee injuries have been known to result. Desk and file cabinet drawers should be kept closed when not in use. Carelessly left open they present collision hazards to unsuspecting employees. Hazards may be found to exist in projecting plumbing, heating, and lighting fixtures. Any such projections that cannot be eliminated should be carefully guarded.

The exercise of care in entering and leaving elevators should be emphasized. It is common practice among office employees to race into or out of elevators while the doors are in motion. Some elevators are equipped with automatic closing devices, making this practice more hazardous. Room doors should be kept either closed or wide open. Partly open doors create collision hazards. Swinging doors should be equipped with vision panels of sufficient size to give clear vision without effort on the part of those using such doors. Self-closing doors should be inspected at frequent intervals to make certain that the springs are properly adjusted and that they do not close with excessive force.

Floor traffic around blind corners subjects employees to collision hazards with other employees. Injuries from broken eyeglasses or falls often result from such collisions. This hazard can readily be eliminated by painting lines on the floor or by installing railing, thus separating by direction, the flow of traffic.

Sanitation.—The practice of sanitation has for its objective the preservation or restoration of health and the elimination of conditions that cause the spread of disease.

CLEANLINESS.—Sanitation connotes cleanliness—good housekeeping. Close supervision should be given to the work of those responsible for cleaning drinking fountains, telephone transmitters, thermos water bottles, floors, and rest room fixtures and equipment. Hot water should be supplied in rest rooms and made available for the building service employees.

EQUIPMENT.—The office should be equipped with sanitary drinking fountains or supplied with individual drinking cups. Care should be exercised to make certain that the water supply is not subject to sources or causes of contamination. Individual, sanitary, laundered, cloth hand towels or paper towels should be provided. Soap of good quality should always be available. The number of lavatories and commodes should be sufficient to accommodate the number of employees to use such equipment. When not governed by law, a ratio of one of each of these fixtures to fifteen or twenty people is often used.

VENTILATION.—Fresh air is essential for good health. The ventilation system, whether natural or mechanical, should provide for frequent changes of air and should be designed so as not to create drafts.

FIRST-AID EQUIPMENT.—Medical kits, the contents of which are carefully selected, should be provided for first-aid treatment of minor injuries or illness. Large offices should be equipped with a first-aid room, having either a nurse or employee in charge who has completed a course in first-aid training.

CHAPTER 13

USE OF OFFICE SPACE

Space Requirements

Determining Space Needs.—Space requirements of an office organization come up for consideration at indeterminate periods and usually during an emergency.

Top management decides to build an office building, move its offices, reorganize, expand, contract, or merge departments, modernize its quarters, or extend or renew its office lease. Sometimes a department head complains of not having enough space in which to operate, or of an inequitable distribution of office space, or of any of many other reasons which may prompt the request for an "immediate checkup of space requirements so we can meet to discuss this subject tomorrow at 10 A.M."

The importance of the correctness of such a report, even in spite of such short notice, need not be stressed. In building, leasing, and modernizing, decisions based on inaccurate figures bring about wrong solutions. Furthermore, in reorganization and distribution of space, inaccurate data may lead to inefficiency in operation.

Total space requirements and a breakdown of window office, general office, and storage space can be arrived at through the long process of planning detailed office layouts, or through the use of known units of space required for standard operations of an office. The former method should be used when there is time, as it is correct to the decimal whereas for immediate conference and negotiations the latter may be used.

Kinds of Office Space.—There are three kinds of space: window office space, general office space, and storage space.

1. Window office space is usually required for executives and particular attention must be paid to the windows, their outlook, and the general location of the private office spaces with relation to the building services.
2. General office space is that which can be occupied by office workers where light, heat, and air are adequate.
3. Storage space is not lighted, heated, or ventilated to the same degree as office space.

In storage space where people are to perform clerical services in connection with the storage of records, supplies, or office miscellanea the space should be specified as office space. In specifying space requirements, the amount of space should be expressed in square feet as:

Window office space	6,000 sq. ft.
General office space	7,550 " "
Storage space	800 " "
Total space requirement	14,350 " "

Depth, Height, Loadings.—Window office space for private office use should be 15 to 20 ft. deep with approximately 10-ft. to 12-ft. ceiling heights.

General office space for groups of office workers should have columns on as long a span as possible, 27 ft. being most desirable with approximately 12-ft. to 14-ft. ceiling heights.

Storage space for typical office requirements is the same as general office space, except that floor loads for concentration of records or supplies should receive special consideration.

Floor loads for office space are satisfied in conditions of 75 to 100 lbs. per sq. ft. construction, and normal storage space in 75 to 150 lbs. per sq. ft. construction.

Amount of Space.—In order to determine the number of square feet of space required for an office layout, the following table of allowances will serve for standard considerations.

1. Office Space.

Private office top executive	400 sq. ft.
Private office top executive and conference table	600 " "
Private office for executive	200 " "
Administrative assistants	80 " " per person
Operating people at 60" × 34" desk	60 " " " "
Operating people at 54" × 34" "	50 " " " "
Operating people at 42" × 32" "	40 " " " "

These units include provision for miscellaneous files, bookcases, coat racks, occasional office equipment, and departmental aisles.

2. File Space.

Letter file	6 sq. ft. ea.
Legal file	7 " " "

The above units are to be used for a centralized file section and they allow for the open drawer only, because it is assumed the quantity of files will require aisles where the drawers open toward each other.

3. Storage Space. Vault, stationery, dead files, special, and miscellaneous storage room space should be added to the above, arriving at the area required after preparing a layout.

4. *Special Equipment.* Accounting, statistical, telephone, duplicating, mailing, and special machine room space should be added to the above, arriving at the area required after preparing a layout.

5. *Miscellaneous.* Reception, waiting, interviewing, conference, exhibit, and special room space should be added to the above as follows:

Typical reception room requires..... 400 sq. ft.
 Typical waiting and interviewing room requires..... 200 sq. ft.
 Typical conference room requires..... 500 sq. ft.

Provides space for fifteen people. Add 50 sq. ft. to this area for each addition of two people.

Exhibit and special room space should be added to the above, arriving at the area required after preparing a layout.

TYPICAL REQUIREMENTS FOR AN OFFICE OF 100 PEOPLE				
1. OFFICE SPACE	Unit of Space	Window Office Space	General Office Space	Storage Space
# People				
1 Private office including conference table.....	600	600		
4 Private office top executives..	400	1600		
15 Private office executives....	200	3000		
10 Administration Assistants...	80	800		
40 Operating people.....	60		2400	
10 Operating people.....	50		500	
20 Operating people.....	40		800	
2. FILE SPACE				
# Files				
150 Letter files.....	6		900	
50 Legal files.....	7		350	
3. STORAGE SPACE				
Vault.....	*		200**	
Stationary storage.....	*		400**	
Dead file.....	*			600
Miscellaneous storage room....	*			200
4. SPECIAL EQUIPMENT				
Telephones.....	*		200	
Statistical.....	*		800	
5. MISCELLANEOUS				
Reception.....	400		400	
Interviewing.....	200		200	
Conference.....	500		500	
		6000	7650	800 = 14,450 sq. ft.

* Calculated from a layout of requirements.

** In office space column because there are people working in these areas at all times.

Figure 71. Typical Requirements of an Office of 100 People

The tabulation in Figure 71 shows a space requirement of 14,450 sq. ft. for a typical office of 100 people, and a gross average of 144.5 sq. ft. per person. It should be noted that typical administrative service space requirements are included in the above, whereas if this office were a department of a larger organization, certain personnel would be provided for elsewhere, as

well as files, stationery, storage, dead files, miscellaneous storage rooms, telephone, reception, interviewing, and conference room space. The gross average would then be 100 sq. ft. per person.

A predominantly clerical type of organization would have a gross average of approximately 80 sq. ft. per person.

Selection of Space.

1. *New Construction vs. Leasing.* In building an office building the space requirements are easily satisfied by building for the various kinds of space required (window office space, general office space, and storage space). It is in leasing office space that space requirements are often limited to what is on the market and the limitations of floor layouts often tax creative ability in office planning.

2. *Floor Locations.* Upper floors of office buildings lend themselves best to private offices while the lower floors are used for general offices.

3. *Orientation.* Private offices usually are planned to have a northern exposure and general offices a southern.

4. *Number of Floors.* Limiting an office to five floors makes vertical contacts and traffic easy. When space is available horizontally it is more desirable up to distances of 200 lineal ft. in any horizontal direction.

5. *Contact with the Public.* Often it is desirable for a firm to be located on the first floor of a building because of contact with the public in the course of carrying on its business although elevator and escalator service has made upper floor space almost as convenient as lower floor space.

6. *Office Building Space.* It is wise in leasing office space to make schematic, if not detailed, layouts in location surveys for office space, as it is surprising to discover the many shapes of floor plans that office buildings offer. Because of shape of property and building zoning limitations, floors of office buildings offer a variety of plans where often a particular one lends itself to the best functional arrangement for a company's office layout.

Leasing the Space

Arranging for Leased Areas.—In all relations between the tenant and landlord, it is wise to use the services of a competent lease broker, a real estate lawyer, and an office planning counselor. Their fees are inconsequential when compared with the many savings in time and money that can be brought about in the original leasing negotiations and during the term of the lease.

The office space lease has many typical clauses and there are many standard forms of leases, but several of the essential factors to check upon in the leasing of space are as follows:

The total area leased should be calculated as summarized in the following digest of "Standard Method of Floor Measurement of the National Association of Building Owners and Managers":

1. The square foot is the accepted unit in measuring floor area.
2. To determine the number of square feet in a rentable area the general rule is to measure from the inside plaster surface of permanent walls, and to the center of partitions that separate the premises from adjoining rentable areas. No deductions should be made for columns or projections necessary to the building.
3. Permanent partitions enclosing corridors, elevators, stairways, toilets, janitor closets, etc. have the same relation to rentable areas as do other permanent walls.

Planning for Use of Space.—Definite plans should be developed for use of the space to be occupied and the lease should be specific in its terms.

OFFICE SPACE.—In the case of floors (ordinarily above the main floor) devoted to office space, it is first necessary to adopt a typical plan, laying out corridors that will reach every reasonable subdivision and leaving access to building services and exits open to all tenants. The corridor wall should then be regarded as a permanent wall, and measurements made accordingly. Even when unusual alterations change the appearance of a floor or throw corridor space inside leased premises, the rentable area figure should not be changed. It is proper to state that so many square feet of corridor space are included with so many square feet of rentable area in the premises offered or under lease, and no additional rental should be charged to full-floor tenants for this corridor space.

STORES AND BASEMENTS.—The same general rule applies to store and basement areas with the exception that in stores the measurement on the street side is from the building line, and in the case of basements, if the rentable area extends beyond the building line under the sidewalk, measure from the curtain wall or finished surface of the retaining wall.

SPACE DESCRIPTION.—A reduced floor plan or plans should be marked to show the location of the office space agreed upon and the plans made part of the lease.

RENTAL.—The rental figure can best be checked by comparing it with other quotations for similar space and terms in the neighborhood. A variance of 10% to 20% is always possible.

LENGTH OF LEASE.—Office leases normally commence on May 1st and expire April 30th of any year. Loft leases commence on October 1st and expire September 30th. Considering the inconveniences and cost of moving and a nominal period to live out any investments in floor coverings and miscellaneous installations in the preparation of office space by the tenant, a lease of three to five years should be a fair term for offices of approximately 15,000 sq. ft. or less.

A larger tenant might become involved in an investment too costly in preparing the premises or even naming the building after the firm, so that longer leases with renewable or even options on ownerships of the building should be considered in the original lease.

EXPANSION, CONTRACTION AND TERMINATION.—Arrangements should be provided in the lease for expansion through options on additional space, contraction through rights to release or sublease, and termination through right to cancellation by compensating the landlord for alterations and loss until rerenting of the premises.

SERVICES.—Agreements between landlord and tenant, as to services that the landlord is to give the tenant and those the tenant is responsible for, should be made a part of the lease. The normal agreements are as follows:

1. Water. Hot and cold furnished and paid for by the landlord.
2. Electricity and gas. Arranged for by the landlord with local utility company, and paid for by the tenant.
3. Steam. For heat, furnished and paid for by the landlord.
4. Relamping electric fixtures. Provided by the landlord and paid for by the tenant.
5. Window cleaning. Provided by and paid for by the landlord.
6. Office cleaning. Provided by and paid for by the landlord.
7. Elevator, janitorial service, repairs, and maintenance. Standard building services are provided by the landlord.
8. Hours, Sundays, and holidays. Regular hours, overtime rates and their effect on service should be agreed upon.

ALTERATIONS.—Before signing the leases the tenant should arrange for working drawings and specifications clearly describing what partitions, doors, electric, plumbing, heating, ventilating, painting, and building standard alterations he expects of the landlord, and have them included in the lease together with unit prices in order to make adjustments as the work progresses or during the term of the lease.

Any alterations that the tenant proposes during the term of the lease should be approved by the landlord before the work is done.

Often the tenant contemplates work beyond that which the landlord terms as building standard, and it is wise for the tenant to agree, before the leases are signed, upon the landlord doing that work at an extra cost or the tenant doing all the work. When the landlord does building standard work only, and the tenant does what might be called his special work, there is liable to be duplication of construction labor and resulting confusion on the job.

MISCELLANEOUS.—The tenant should try to favor installations of machines and materials and the contracting of services that have already been

established in the building. Typical of these are water coolers, fans, towel services, building signs, and electric current.

Repainting of the leased premises should be done every three years and should be referred to in the lease.

COPIES OF LEASES.—It is customary to prepare three copies of leases, one for the landlord, tenant, and broker (a fourth where states require registering of leases).

Building Restrictions.—Restrictions which may govern the use of space should be investigated in the course of negotiations.

A wholesale shoe manufacturer's executive offices wanted to have a retail outlet as part of its office layout in its new quarters in a modern office building. If this had been overlooked in negotiating for the office space, serious complications could have developed affecting the operation, other tenants, and the landlord.

The average office building does not plan its upstairs office space to satisfy retail operations, and is limited in fire exits, stairways, floor loading, elevators, toilets, ventilation, and corridors to standard office-type tenancy. One can easily understand the confusion that could be brought upon an office building by an advertisement by a tenth floor tenant of a specially-priced pair of shoes.

The typical office lease has many standard clauses of restrictions directly and indirectly imposed upon the tenant, but the tenant should further investigate whether or not the tenancy of his company would be affected by the following:

1. Buildings built for office, store, loft, factory, or warehouse use but tenanted by types other than those for which the building was originally designed due to changes in neighborhood.

2. Restrictions imposed by local zoning of business functions.

3. Local building department, labor department and fire department rules and regulations. Typical restrictions are as follows:

- (a) The building department (1) limits the loading of floors generally to 50 pounds per sq. ft. for office occupancy; (2) requires office layouts keep stair wells clear—provide for aisles to building services and exits, and adequate ventilation of inside spaces, etc.

- (b) The labor department requires the presence of rest rooms for female workers and first-aid facilities, etc.

- (c) The fire department requires that (1) windows and window sills be kept clear (2) fire hose boxes, alarms, light switches, and extinguishers be kept accessible (3) inflammable materials be stored in vaults and (4) fire exits and lobbies be kept clear, etc.

4. The National Board of Fire Underwriters requires lamp and office machine cords be limited to 6 ft. as part of electric wiring standards as well as sprinkler system spacings, etc.

5. The landlord requires that the tenant check with his building engineer to pass upon physical and mechanical conditions before making any special installations as air conditioning, electric machines, and such, because electric, water, and steam capacities in a building are not always adequate for installations which the tenant may desire to make.

Responsibilities of the tenant and landlord for violations of the above restrictions vary in each state and locality.

Moving the Office

Planning the Move.—Moving the office may be a problem of complete change of location, the rearrangement within present quarters, or merely the addition of one desk to an already established department. The first step in any move is to plan in detail what has to be done and the order of doing it, and determine the time which will cause the least inconvenience to all concerned. Noon periods are satisfactory for small moves but larger moves should be made after office hours or over week ends. Try to anticipate and solve all problems before they arise. Will those large cabinets or machines have to be dismantled for handling? Will they go through the doors, down the stairs, or on the elevator?

Preparatory to making a move it is an excellent idea to have a thorough housecleaning. Dispose of material which has no further value, thus eliminating the extra handling of equipment, files, etc. which will not be used at the new location. Filing cabinets, if bolted together, should be disconnected in advance of moving time so that they may be picked up one at a time.

For large moves, prepare a minimum of two sets of floor layout plans for the new location, and for the present location. These plans will be the basis for the entire job. They should be complete in every detail and drawn to scale— $\frac{1}{4}$ in. equals 1 ft. is perhaps the most usable. Be sure to mark on the plans the exact spacing between desks, tables, and other furniture and equipment. As the moving progresses, it is much easier and more accurate to read these figures than to measure the drawing. A set of "before" and "after" plans should be available at each end of the move except for small moves where one set will suffice.

MOVING EQUIPMENT.—Study carefully the proposed layout as well as the present layout to determine which piece of equipment or furniture should be moved and placed first, second, third, etc. Try to arrange this so that handling will be kept at a minimum—once for each item if possible.

When the order has been settled, number the proposed layout plans accordingly (1 for the first item, 2 for the second, etc.) and then number the

present plans with corresponding figures. These same numbers should be applied to the equipment and furniture. Use tags or stickers and if more than one floor is involved in the layout, use a separate color for each floor. This immediately identifies the floor to which the piece is assigned. If it will be necessary to turn desks on side or end to get them through doors or other narrow passages, the drawers should be numbered to make it easy to replace them in the proper desks and in the correct position in the desks. Show the same number as that assigned to the desk plus R, L, or C for right, left, or center and 1, 2, 3, etc., numbering from bottom to top. Thus 164 R 2 would be the second drawer from the bottom on the right side of desk number 164.

PREPARATION AT NEW LOCATION.—All construction work, decorating, and floor polishing, if necessary, should be completed before starting to move in. Establish the starting point for placing equipment and furniture as it arrives. Mark with chalk, on the floor, the exact location of each piece so that when it arrives it can immediately and finally be placed where it is to be used. Mark each space with the number corresponding to that which appears on the item which is to occupy the space. A chalk line on the floor will simplify alignment.

If the move is comparatively simple, marks on the floor may not be needed, but distances from fixed objects (walls, columns, etc.) to the first desk, table, or other item to be placed should be determined from the layout plan so that placement of other items can be measured from this piece.

SERVICE ARRANGEMENTS AND NOTICES.—Arrangements should be made with the telephone company for the disconnecting of telephones at the old location and the installation of telephones at the new location. Notify the telephone company far enough ahead of time so that service men may handle service with the least amount of interruption. Arrange with electricians to disconnect annunciators, private communication systems, and other power lines and connections to electrically-driven office machines, lamps, etc. Also plan to have these same lamps, machines, etc. connected at the new location so that the office work may be resumed after the move without delay or confusion. Electrical outlets or special wiring should be installed before moving in furniture and equipment so that equipment and machines requiring electricity can then be easily and quickly connected.

Notify those in the office who will be affected by the move so that they may arrange for all papers, folders, books, etc. to be cleared off the tops of desks, tables, files, and machines and placed in files, desks, or in boxes which may be marked to go with certain desks, files, or even a department. If the desks will have to be turned on the side or end be sure the drawers are not locked so that they may be removed.

Equipment and Personnel for Moving.—The following equipment will be found sufficient for most moving jobs:

1. Two-wheel handtrucks for filing cabinets, stationery cabinets, and other upright pieces.
2. Four-wheel trucks, with sides, for small items, machines, chairs, etc.
3. Dollies with a special block which will extend under both pedestals of desks so that desks may be moved without tipping; unless it is necessary to get them through narrow passages or doors, in which case desks may be placed on end on the dolly. Dollies may be used for other large pieces of furniture and equipment.

If the floors of the new offices are covered with linoleum or other covering which will be marred by feet of desks, tables, machines, etc. use furniture shoes under those feet. Also caution movers not to slide these items and thus scar the floor covering.

MOVING CREWS.—Movers should be organized into crews or gangs with definite assignments for each. For instance: Crew 1 to move pieces from present location to elevator or to the exit; Crew 2 to load moving trucks; Crew 3 at new location to unload trucks; Crew 4 to take furniture and equipment to the elevator or to final exact location. Everyone taking any part in the move should know the part for which he is responsible so that the move can proceed smoothly and without interruption.

SUPERVISORS.—At least two supervisors are needed—one at each location to work from the layout plans. The supervisor at the present location will see that items are released in the proper numerical order. The receiving supervisor will see that furniture and equipment are properly placed. Another supervisor might be needed where moving truck is unloaded to be sure pieces are taken from there to final location in proper sequence. Each supervisor should have a set of plans from which to work.

FINAL DETAILS.—After all furniture and equipment have been placed, and machines, telephones, lamps, etc. connected, clean up the floor and remove the packing materials so that the office is ready for clerical work to begin on time when the office next opens. On the first working day after the move it may be advisable to have guides on hand to direct employees to their work spaces.

Office Layout and Flow of Work

Importance of Work Flow.—The established principle of the straight line being the shortest distance between two points is applicable to office work. The routine of the clerical work moving from one working position to another should, when laid out on paper, resemble a railroad track that connects two or more points. There should be no turning back or crisscrossing; the movements should be entirely in a forward direction. This is the economical method for processing office work.

One finds opportunities for improving clerical routines in the office where the work is not moving in a forward direction. The size of the office—the number of employees—is immaterial, as results may be achieved in an office of any size by improving and simplifying the work flow. For example, in an office of only a few people, improvements were made in dispatching mail by seating the order clerk opposite the mail clerk. As the clerk opened and sorted the mail, the letters containing orders were passed across the desk to the order clerk. Previously, it had been necessary for the mail clerk to transport the orders about 30 feet to where the order clerk was seated.

The adoption of a well-planned work flow will facilitate all the work in the office. An increased volume of work may be handled daily when all unnecessary travel of paper and employees has been eliminated. Delays in entering customers' orders are reduced, the preparation time for payroll and monthly reports is decreased, the locating of orders in production, and the answering of inquiries are made easy as a result of the careful planning of the work.

The operating costs are lower per unit of work in the office where the clerical work moves in the forward direction than in the office where the flow of work has not been studied and planned and the best methods adopted. For example, where the layout has been simplified and standardized, messengers can be routed so as to cover the office on a regular schedule and with the least amount of travel. This improved situation will result because the distance between the work places are at a minimum, the furniture is located so as to permit economical passage of employees, and the mail receptacles are placed within easy reach of the messengers. When messenger service is available on a regular and frequent schedule, the necessity for clerks and executives to perform this service is eliminated.

The basic principle in studying the flow of work is that of analyzing each important routine from its start through to its completion. A routine is a number of successive clerical operations, each of which is performed by a separate clerk or group of clerks until all are complete.

Causes of Uneven Flow of Work.—Uneven flow of work in the office may be caused by:

1. The closing-rush hour
2. Not segregating the "rush" from the deferred work
3. Little or no work in the first hour of the morning
4. Equipment not properly located
5. Limited or no training of employees
6. Poor supervision
7. Proper working tools not furnished to the employees
8. Defective layout

Maintenance of Good Work Flow.—Good work flow is maintained by establishing methods for processing and transporting work from one clerk or work center to the next, by setting standards of time for the handling of the work at each step in the routine, by scheduling work, and by training the personnel.

The established work methods and the routing of the work should be available in manual form for the guidance of the employees and for the training of the new employees. Deviations from the approved routines should not be allowed unless they have been sanctioned by the office approving the original routines. Otherwise, the flow of work may become disrupted and uneven. The scheduling of the work, based upon volume and standard time studies, will enable the management to know what work is to be done and to know that the time for doing it has been determined. However, making the schedule does not mean that it will be followed. It is necessary to provide procedures and methods that will assure management that the schedules will be adhered to.

Employees should be thoroughly trained in the standard methods of work in order that the flow may be continuous and within the scheduled time. Written standard practice instructions that contain the forms used, the flow charts, the desk layouts, the standard motions, a detailed description of each operation, and the time required to perform each step in the procedure constitute the basis for the training program.

A steady work flow can be maintained only when there is a steady volume of work. This ideal situation can be approached by an adherence to the standards and to the schedules, by keeping records of the daily volume of work which will be used to indicate inevitable fluctuations, by providing temporary personnel to handle the "peaks," and by constantly providing the material required by each clerk.

When to Review Routines.—No routine will automatically bring itself into proper relation with changing conditions. The effectiveness of an existing routine may be destroyed as the personnel changes, the volume of work increases or decreases, the need for all or part of the information no longer exists, the work methods are changed (i.e., placing inventory records on punched cards), additional copies of the forms or reports are required or eliminated, or other conditions are changed that were a part of the "best" routine.

When changes occur that affect the routine, it is necessary to review all its elements. Any attempt to otherwise fit the changes into the existing routine usually results in the loss of well-balanced relations.

Value of Good Layout in Facilitating Flow.—The plan of the office is like the plot in the play, only the space planner of the office is often limited in his planning by having to use space already built, which limits its possi-

bilities, whereas the playwright is free to create all factors affecting his plot. One can expect the best from an office layout plan that is part of a new building construction project, where the building and functional elements of the office layouts are worked out together, where only orientation and possibly street approaches are the limiting factors. An office layout prepared under these conditions, using scientific office planning methods, results in clean-cut circulation about the office, locations of departments according to functional relationships and flow of work, in types of space best suited for the various units and in amounts allowing for equipment arrangements required for properly carrying out the functions of the business. Departments which are laid out in accordance with planning standards and which are provided with modern equipment and physical comforts of noise control, light, air conditioning, and color give the appearance of an effective, working office.

The company that is in a competitive market must make use of every known method for decreasing the unit overhead expense. Lower operating costs in the plant resulting from the installation of new equipment, better machine layouts, and employee training can be offset by the poor layout of the office, by cumbersome clerical routines, and by poor work habits of the office employees. The main work flows, which always exist in an office, determine the location of departments in the office plan. A common example is the work flow of a customer's order. The flow starts at the mail room and may travel to sales for editing, to statistics for immediate recording, to order and billing for typing, and, possibly, to one or more of such other sections as credits and collections, purchasing, engineering, and shipping, depending upon various considerations.

Within the departments, equipment and individuals are arranged to satisfy the detailed work flow. Often their records, machines, and personnel are so arranged in plan as to serve several adjacent activities thus eliminating duplication, saving footsteps, and increasing work output. Comprehension of work flow charts and unit office operations is required for the proper planning of office layouts.

Layout Ideals.—The ideals for a good layout are:

1. Placing related departments adjacent or close to each other.
2. Development of work centers. All related work such as order writing should be handled as a unit which becomes the work center. The work center area includes space occupied by the employees, the furniture, and the equipment, and a share of the aisle space required between that work center and the next.
3. Straight line flow of work. The furniture and the equipment should be arranged so that the work moves in a forward direction.

4. Short moves of material. Material should pass from one work center to the next, or from one clerk to the next, with the minimum amount of handling and time. Short moves are of great value when time is the important factor.
5. Development of service centers. Centralized services, such as stenographic, tabulating, reproduction, etc., should be convenient to the work centers, so as to reduce the distances between them and to decrease the time of transporting the material. Other service centers, such as rest rooms and drinking fountains, should be placed where they serve the greatest number of people with the minimum amount of travel.
6. Providing internal transportation facilities. The main aisles should be wide enough for the passage of handtrucks, such as used for delivering mail or supplies and to eliminate congestion or disturbance of employees. Mechanical conveyors should be used to carry the material from one department to the next.

Other suggestions¹ are :

Departments having considerable contact with the public should be located so that they are easily accessible to the public, without the necessity of disturbing other departments.

Noisy departments or departments in which the work is of a disturbing nature should be removed as far as possible from the other departments.

Private offices should be reduced to a minimum. Unless the office space is unusually suited to subdivision, private offices reduce the natural light available to the other workers, complicate the ventilation problem, and increase the requirements for space, because more space than is ordinarily necessary is assigned to them.

Corridor doors should be numbered consecutively to facilitate identification and location. Departmental names on the doors assist in locating them.

Adequate space should be provided around the files so that the file clerks can have easy access to them. Crowding and congestion reduce efficiency.

Employees should face in the same direction, with the natural light coming from their left.

Supervisors and department managers should be located to the rear of the employees. In other words, the employees should have their backs to the supervisors. This reduces the tendency to look up to see "who is at the boss's desk." Disturbing conditions should be eliminated as much as possible.

Adequate telephone service should be provided, so that movement to and from telephones will be reduced. There should be an adequate number of drinking fountains, conveniently located.

¹ Wylie, Gamber, and Brecht, *Practical Office Management*, Prentice-Hall, Inc., New York, 1937, p. 268.

When to Review the Present Layout.—Present layouts should be reviewed when: (1) there is an increase or decrease in personnel, (2) procedures are changed, (3) errors in work occur that may be caused by overcrowded work areas, noise, crowded aisles, improper work flow caused by arrangement of furniture, inefficient travel of clerks, and space limitations, and (4) lack of usable space.

The advantages to be derived from reviewing and revising the layout are:

1. *Better supervision.* There is a definite relationship existing between a good layout and good supervision. Discipline, controlling the flow of work, and inspection of the work are achieved when the supervisor can view all operations with the minimum amount of effort.

2. *Increasing value of areas.* A study of the layout will show where present space (a) can be more economically used by better arrangement of furniture, (b) can be used for other purposes, such as the expansion of the engineering department, (c) not being utilized may be used for clerical activities.

3. *Reducing the time required to complete a cycle of work.* Every delay in getting out work according to schedule represents a financial loss to the organization, irritates the management, and encourages slovenliness among the employees. These delays are reduced in offices that are laid out to provide for the best movement of work with the minimum of time.

4. *Preventing unnecessary building changes.* As the size of the space, the location of physical structures, such as electrical outlets and partitions, are determined when the layout is being made, the necessary alterations in the building should be made before relocating the equipment. If the layout is not made in advance of moving, costly modifications and alterations in the structure that will not meet the actual requirements may be made. Consequently, changes will have to be made after the move and they will cause additional expense due to construction and lost time of personnel, as well as possible loss of customers' goodwill due to delays in handling the order or prompt answering of correspondence.

5. *Improved controls and procedures.* A good office layout provides the basis for building a sound organization and for establishing procedures. Simple, but effective, controls of work methods, scheduling and movement of work, and measurements of performances against standards can be easily installed after the procedures have been prepared.

Factors to be Considered.—The factors to be considered in laying out an office are:

1. The functional relationship of the activities
2. The elimination of noise centers

3. The screening of confidential activities
4. The utilization of space
5. The convenience in communication
6. The elimination of safety hazards.

Departments or work centers, depending upon others for work, should be near each other. Customers' records, for example, that are maintained on punched cards should be located next to the tabulating equipment so as to reduce the distance for the card trays to travel. In a similar way, the credit department might be located adjacent to the bookkeeping department. Other departments, such as purchasing, personnel, and cashier, that have direct contact with the public, should be located so that the public does not have to pass through any of the offices to reach them.

Noise centers should be segregated so that their operations will not disturb the employees in nearby areas, and wherever possible, enclosed with sound absorbing material. Communication equipment such as teletype machines, tabulating equipment, reproduction equipment, and centralized stenographic services are examples of noise producing centers. By segregating them, it is possible to attempt structural methods of reducing noise and to confine the noise to a few locations in the office.

There are functions of a business which are of a confidential nature and that require isolation from the other functions and from the public. The paymaster's office, for example, contains confidential information relating to wages and salaries, the comptroller's office may maintain confidential financial summaries, and the legal department may maintain files of the company's "secrets" such as patent material and other documents.

In laying out the office, it is necessary to take into consideration the methods of communication that are to be used. There are two general types of communication, oral and written. Oral messages are conveyed by messengers, by electric communicating or announcing systems, and by telephone.

The location of the mechanical equipment is an important factor when announcing systems are used and they should be placed so that the employees hear distinctly. Telephones may be arranged to serve one person or a group of persons, depending upon the frequency of use. In the latter case, they should be centrally located so as to avoid excessive traveling of the employees.

Written communications are delivered by messengers, by mechanical means, such as the teletype, radiotype, belt conveyors, pneumatic tubes, baskets, and by teletype and telegram for outside communication. Wherever possible, service centers should be established and located where they cause the least distraction to the employees.

Space that is not being utilized to the best advantage represents an outlay of money for which no return is received. For example, if space for five additional desks, say 300 sq. ft., can be obtained, the monetary value will be at least \$4,500 during a five-year lease on the spaces at a rental rate of \$3 per sq. ft. This amount may easily pay for the cost of making the new layout. Usable space can be recovered by the elimination of partitions and railings and by centralizing services, such as filing, reproduction, tabulating, and stenographic. Railings are installed to separate departments and to prevent employees and visitors from entering departments unless they have business there. Usually, these railings take up valuable space and prevent the advantageous placement of furniture. On the other hand, they can serve a useful purpose as, for example, when used to form a reception area.

Consideration must be given to safety when the office is being laid out. The application of safety principles to the office is just as important as to the plant. Work areas must be laid out to provide for the physical movement of material and personnel, for adequate working area for the equipment, and for the storage of material, such as file cabinets, tub files, and supply cabinets. Work area space must not be overcrowded so that it becomes a hazard.

When machinery is to be permanently installed or attached to the floor, adequate space must be provided for its maintenance and repair. Some of the maintenance problems are overhauling the equipment, removing parts such as motors, and cleaning and oiling. In addition, sufficient space must be allowed for the custodial forces to sweep and clean around the equipment. The equipment should be placed in close proximity to electrical outlets so as to avoid using loosely-placed wires that are a source of accidents in the office. Equipment using water should be located where the employees will not be in direct contact with the pipes and where work or materials will not be damaged in case of leakage.

Partitions, likewise, take up valuable floor space and should be used sparingly. As an alternative, file cabinets can be used in place of partitions. One company reclaimed space in their central file room by removing the partitions and enclosing the work area with five-drawer file cabinets. The charge-out desk was placed so as to serve the employees and at the same time allow for ingress into the work area.

There are many other confining elements to be considered beyond the basic program of space requirements for personnel, equipment, and work flow.

The decision to use one floor instead of parts of two or more floors for the office layout is sometimes within the province of the office planner, and the following schedule might be of use in leasing or building new office space:

<i>Area Required</i>			<i>Number of Floors</i>	
5,000 to	10,000 sq. ft.	—	1 floor or 2 floors of	5,000 sq. ft.
10,000 to	20,000 sq. ft.	—	1 floor or 2 floors of	10,000 sq. ft.
20,000 to	30,000 sq. ft.	—	1 floor or 2 floors of	15,000 sq. ft.
30,000 to	50,000 sq. ft.	—	1 floor or 2 floors of	25,000 sq. ft.
50,000 to	80,000 sq. ft.	—	1 floor or 2 floors of	40,000 sq. ft.
80,000 to	100,000 sq. ft.	—	3 floors of	25,000 sq. ft.
100,000 to	1,600,000 sq. ft.	—	2 floors or 4 floors of	250,000 sq. ft.
1,600,000 to	10,000,000 sq. ft. & over	—	4 floors of	400,000 sq. ft. or units of above
			Several buildings in units of above.	

Electric outlets, underfloor duct lines, radiators, air conditioning supply and return grills, window mullion spacings, column spacings, depth of space, ceiling height of space, sprinklers, stairways, elevators, dumbwaiters, natural light, and proximity to building entrance all play their part in effecting layout and form part of the requirements in laying out the office.

Providing for Flexibility.—Since flexibility is one of the most essential requirements of the office layout, a part of the machines, equipment, and structural and mechanical installations have been designed to serve the office planner in this direction.

Machines have flaps for work surfaces, serve many purposes, and are often on movable stands and run by universal motors.

Equipment is standardized in lines, colors, and designs, in order to be interchangeable and permit grading for various levels of office workers. (See Figure 72.)

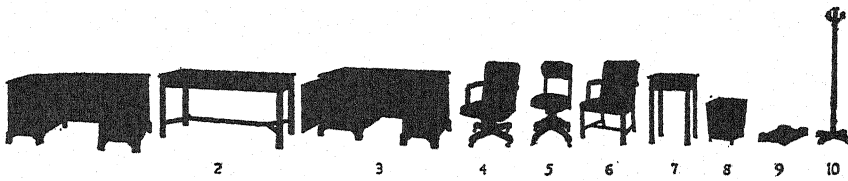
Structural walls are made movable by being built of steel, wood, or composition materials to permit easy changeability, and buildings are built with columns, windows, piers, and corridors on preplanned spacings to permit planning flexibility.

Mechanical elements of the building, such as location of radiators, supply and return grills of air conditioning, overhead lighting fixtures, switch controls, and under-floor ducts are all coordinated in preplanning to assist the office planner.

It is important to leave these preplanned elements free of interference, as well as to be careful not to locate fixed activities of the office in areas where future flexibility will be hampered (e.g., telephone switchboard rooms, corridors, etc.).

The Need for Private Offices.—The necessity for a private office should be determined by:

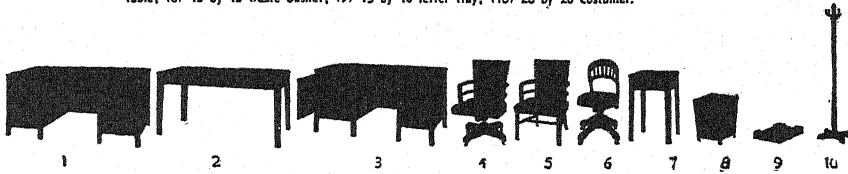
1. The nature of the work of the occupant
2. The frequency of visitors



FOR SENIOR EXECUTIVES

EQUIPMENT IN MODERN CHIPPENDALE DESIGN

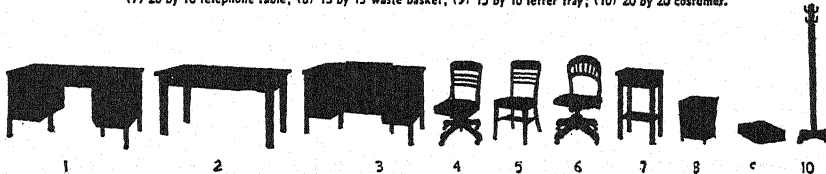
(1) 66 by 34 flat top desk; (2) 66 by 34 flat top table; (3) 60 by 34 secretarial desk; (4) arm swivel chair in leather; (5) leather posture chair; (6) arm side chair in leather; (7) 24 by 18 telephone table; (8) 13 by 13 waste basket; (9) 15 by 10 letter tray; (10) 20 by 20 costumer.



FOR SUB-EXECUTIVES

EQUIPMENT IN MODERN TURNED LEG DESIGN

(1) 60 by 34 flat top desk; (2) 60 by 34 flat top table; (3) 60 by 34 secretarial desk; (4) arm swivel chair in leather; (5) arm side chair in leather; (6) combination wood and leather posture chair; (7) 20 by 16 telephone table; (8) 13 by 13 waste basket; (9) 15 by 10 letter tray; (10) 20 by 20 costumer.



FOR GENERAL OFFICE CLERICAL FORCE

EQUIPMENT IN MODERN SQUARE LEG DESIGN

(1) 54 by 32 flat top desk; (2) 54 by 32 flat top table; (3) 54 by 32 center drop stenographer's desk; (4) plain swivel chair; (5) plain side chair; (6) wood posture chair; (7) 18 by 18 telephone table; (8) 13 by 13 waste basket; (9) 15 by 10 letter tray; (10) costumer (or general coat room is provided.)

Figure 72. Standardization of Equipment in a Typical Business Office

Offices are allocated to executives and supervisors who require protection from interruptions, who do creative work, whose work requires concentration, and who conduct interviews of a confidential nature. Private offices, especially those with permanent partitions, present numerous problems, such as using valuable space, interfering with the flow of work, and complicating the heating, lighting, and ventilating. They also increase the difficulty of office supervision. Conference rooms should be substituted for private offices wherever possible. These rooms can be used for small group meetings and by executives or supervisors who do not need privacy during the entire working period.

Facts Needed in Making a Layout.—Preparatory to making the layout, it is necessary to know:

1. The management's plans for the expansion or the contraction of activities at the present location. Is consideration being given to decentraliz-

ing any of the departmental work, such as accounting or purchasing or will any of the clerical functions being performed in branch offices be transferred to the home office? In either case, such a transfer of activities will affect the space requirements and the procedures.

Future sales programs must be understood in terms of anticipated internal activities, such as an increased or decreased number of employees, or change in size of individual orders. If management anticipates that the dollar size of the order will decrease and that the plant output will remain unchanged, then there will be more orders to handle than when the dollar volume of the order was large. When such a condition exists, it may be necessary to employ more people or to add office equipment, therefore more floor space will be required.

2. If consideration is being given to moving the office to another location in the same community, or to another community.

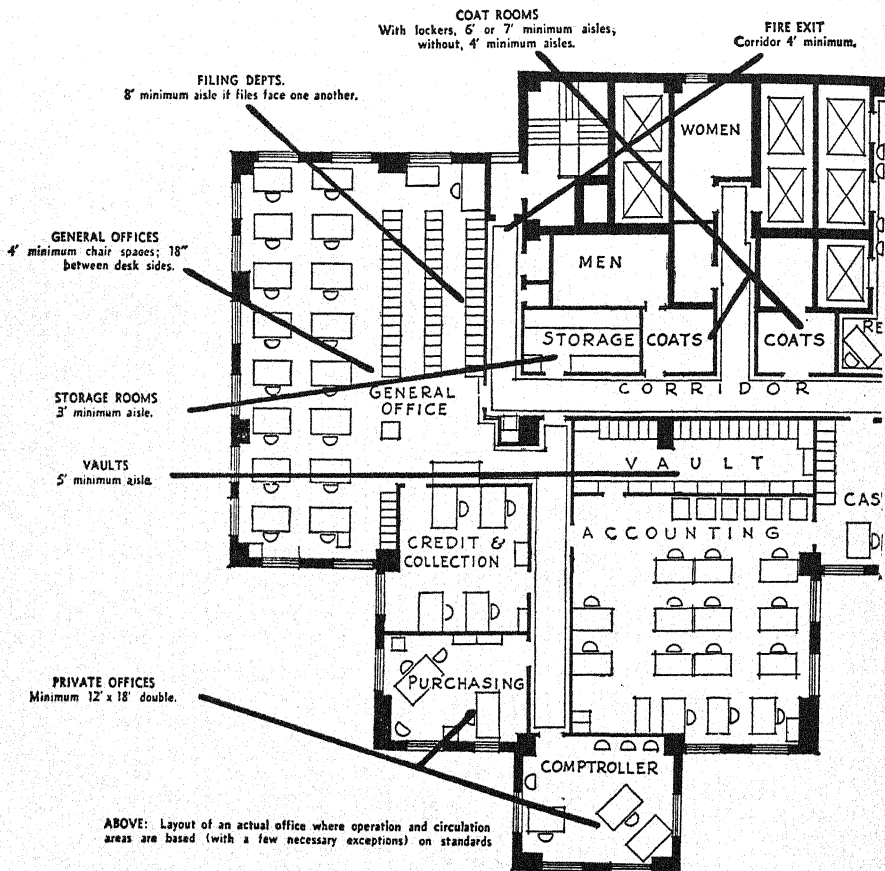
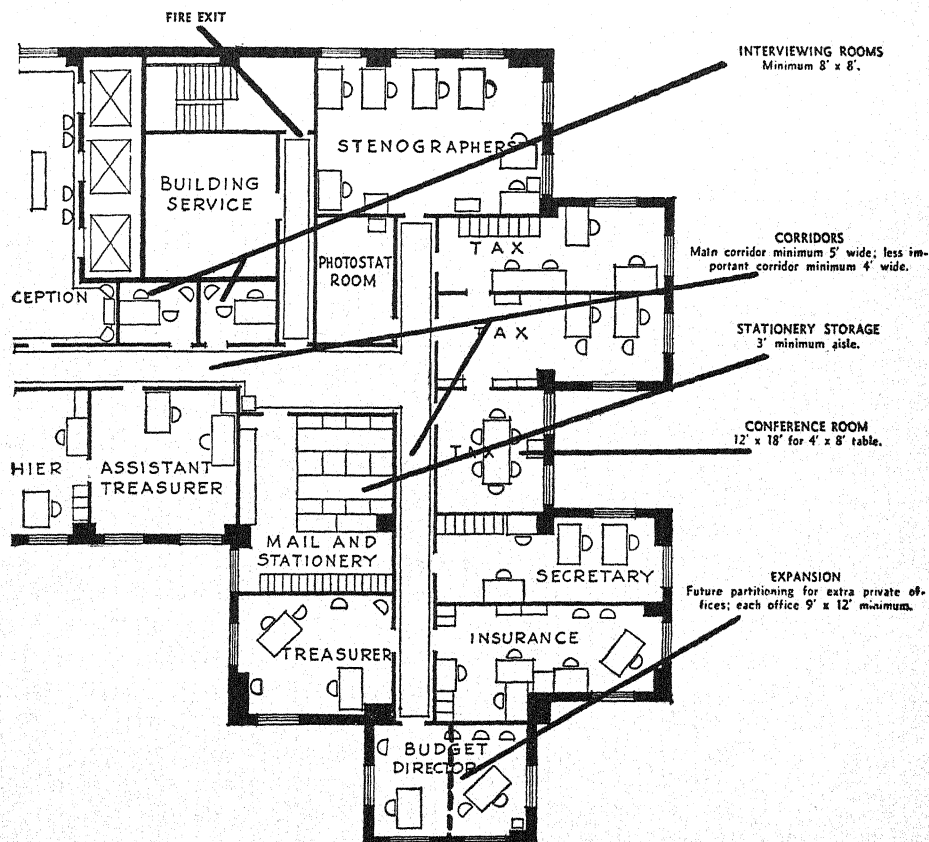


Figure 73. Planning

3. The management's attitude toward the adoption of "special" furniture. The work of the analyst in studying the present procedures and work methods, if accompanied by a motion study analysis, may suggest a different type of furniture construction and size that can be provided by the furniture manufacturers. The acceptance of privately designed and constructed furniture may easily affect the total space required.

4. The employees' opinions of the good and bad features of the present arrangement of furniture. The importance of this information cannot be underrated. The employees should be made to feel that their opinions are valued by the management and that they have a part in the new program. Employee cooperation is necessary when the changes, as shown on the revised layout, are made.

5. The space available at the present or future location.



6. In addition to the foregoing, it is necessary to know that:

- (a) The procedures are absolutely necessary for the conduct of the business.
- (b) The forms have been correctly designed.
- (c) The work centers have been planned so that all unnecessary motions have been eliminated.
- (d) The best writing methods and equipment have been selected.

Layouts may be prepared to (1) improve the use of present space, (2) adapt the new layout to an existing structure, and (3) guide management, architects, and engineers who are confronted with the problem of designing and constructing the new office building.

Office Layout Hazards.—In laying out the offices one should keep in mind certain pitfalls, such as:

1. Recreating old space relationships in new quarters.
2. Assigning too many private offices.
3. Providing too many partitions, particularly plaster partitions.
4. Usurping space for private offices, conference rooms, etc., which would have greater utility if otherwise employed.
5. Assigning fixed areas, like floors or wings, to departments when space studies show that less space is required.
6. Building large storage vaults for records which should be stored elsewhere or destroyed.
7. Allowing the whims of executives to overrule flow of work as the determinant of departmental positioning.

Planning Standards.—The distances allowed between desks, special equipment, and aisles, the planning of desk arrangements, and the size and number of private offices are all variable, though a guide is desirable.

Accepted minimum standards for desk spacings are 6 ft. from back to back of desks, i.e., for the typical 60-in. x 34-in. desk, with a maximum of two together so that one end of each desk is on an aisle. When more than two desks are placed end to end, a minimum of 7 ft. from back to back of desks is necessary. Inside aisles within desk areas and adjacent to special equipment should be from 3 ft. to 5 ft. wide, and main corridor aisles, 5½ ft. to 8 ft. wide. Aisles in central file sections may vary from one-drawer width, with 27 in. for storage and transfers, to 8 ft. for active files, allowing for two-drawer pulls of files facing one another and passage or work areas for two people.

Space between teletypes, switchboards, mail room tables and racks, and stock room shelving all require special analysis. Likewise, space for central stenographic and duplicating sections, reception and conference rooms, and statistical machine sections all require individual planning, depending upon each company's needs.

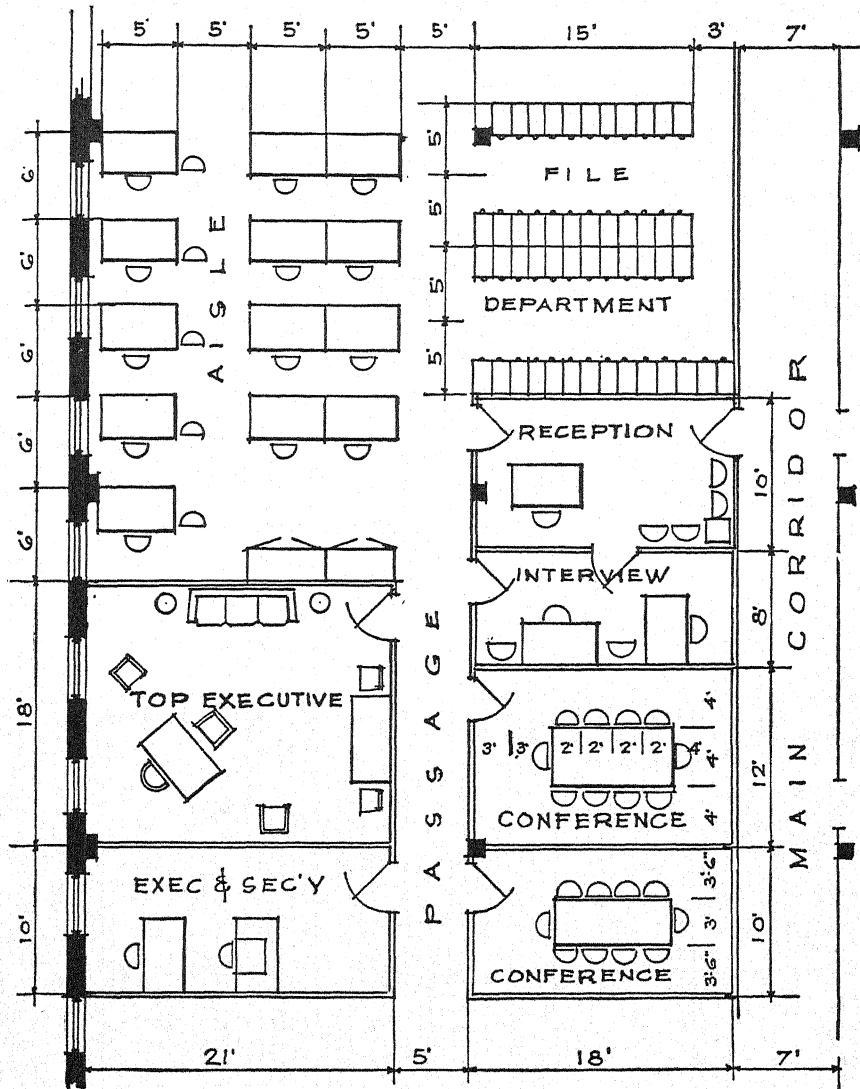


Figure 74. Office Planning Standards

Private offices may vary from 8 ft. x 12 ft. to 10 ft. x 15 ft. and upward. Conference rooms for eight people are approximately 16 ft. x 12 ft., with 2 ft. added to the length for every two additional people. (See Figures 73 and 74.)

Unit Planning.—There are portions of the office layout where organizational units can be laid out in typical planned units. In new building

construction, the column framing, ceiling heights, and mullion centers are preplanned for these typical office units. The two most common are the division heads section of the office and the operating or production section.

The divisional heads section is that part of the office operating immediately under top management and supervising the operating or production

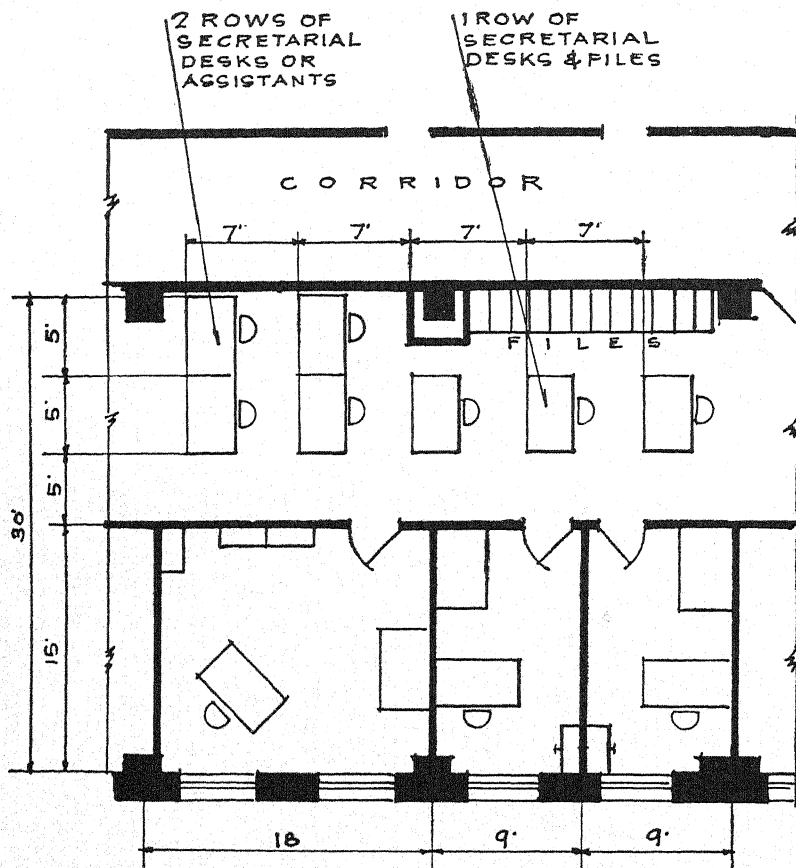


Figure 75. Divisional Head Section

sections. These divisional heads have secretaries and assistants, and the space arrangement suggested by Unit Plan (Figure 75), shows a typical portion of an office arranged for in this fashion. For example: A strip of space 30 ft. wide might lend itself to a row of offices 15 ft. deep with 15 ft. of space for inside assistants and secretaries. This 15-ft. space would allow for single rows of desks, files and corridor, or a double row of desks and a corridor. (See Figure 75.)

The operating or production section is that part of the office operating immediately under the divisional heads. This section of the office usually has groups of office workers, equipment, and machines in large open office areas with rows of or occasional supervisory offices. The space arrangement suggested by Unit Plan (Figure 76) shows a typical portion of an office arranged in this fashion. For example: A strip of space 60 ft. wide might lend itself to a row of offices 15 ft. deep, a 5-ft. corridor and 40 ft. of adjacent general office space. These 40 ft. would allow for two double rows and a single row of desks, and three aisles—or two single and a double row of desks, a row of files, and three aisles—or any other typical office equipment arrangement. (See Figure 76.)²

INTEGRATED PLAN.—The use of the unit planning idea in office layouts leads to better integration of office functions. The old method of having office partitions form custom-built units of departments as shown on organization charts is giving way to the open office for more flexibility, economy, better supervision, and equal consideration for all parts of the office.

For example, in a custom-built office layout, with a sales department handling eight different commodities, and consisting of 150 people in 15,000 sq. ft. of space, each of the eight sections could have varying numbers of partitioned offices for the executives, the assistants, the secretaries, as well as special partitioned areas for the section personnel. In this case the 15,000 sq. ft. of space, housing these eight sections, would consist of a tailor-made layout of eight planned units. Thus when there is expansion or contraction of any one section, the whole area might have to be changed. However, in an integrated office layout, the open office for this sales department would permit (where there is a line of private offices and a general office space running outside) increases and decreases of personnel in each of these eight units to be made by switching occupants of private offices and merely shifting desks in the general office open area. Objections of department heads to such rearrangements can usually be overcome when it is pointed out that the entire operation can be performed over a weekend and that it involves only such minor adjustments as occasional electric and telephone outlet changes.

The general office open area in this case should be well and uniformly lighted, acoustically treated, equipped with underfloor ducts for telephone and electric outlets, and mechanically ventilated or air conditioned. The space should be of a shape to permit convenient relationships between the private offices and their respective office sections, thus avoiding the need of placing sections at a distance too great from the related private offices and supervisors.

² These layouts would average from 50 sq. ft. to 70 sq. ft. per person in the general office.

and beam spacing, and the flexibility of overhead lighting layouts, grills for air conditioning supply and return, standardization of office equipment and office planning.

In constructing the new office building, the steel columns, framing, location of doors, windows, and the above elements can all be part of pre-planned standards for maximum efficiency, flexibility, comfort, and economy.

Office Planning Tools.—The tools of office planning are the records and current data on the organization, procedures, and personnel. The records are master sets of up-to-date reference drawings and office layouts of the space. They are usually as follows:

1. A blank plan of the premises showing fixed elements of the office space with dotted lines to indicate the basic circulation plan and bay or room numbers with the area for each unit of space.
2. A copy of this plan should be colored to show what areas are assigned to major departments of the company, so that the office planner can make ready reference to the areas and to the total number of square feet assigned to each department. This is the space control plan.
3. An up-to-date office layout showing all partitions and equipment in detail.
4. An architectural and structural set of drawings, showing physical conditions of the premises and types of partitions.
5. A mechanical set of drawings detailing overhead lighting, switch control, electric and telephone outlets, plumbing, heating, and air conditioning information.

These drawings should be kept up to date at all times, and the office planning unit should keep itself currently informed on all factors affecting organization, procedures, and personnel, so that it can anticipate changes, know where space will be needed or will become available through increases and decreases in personnel. It must keep abreast of this information if effective space control is to be exercised.

A Basic Plan.—All parcels of space, whether in new or old buildings, have a basic circulation plan around which the office layout is built. This is one of the first matters to study in looking over a parcel of existing space, or when planning for new construction. The main corridor should extend from the entrance, reception room, elevators, or stairs to the various locations of the floor or building. It is this corridor that all building and office service facilities tie into—the reception room, mail, file, telephone, rest rooms, stationery and storage, porters' closets, electric and telephone service closets, air conditioning rooms, etc. This corridor also provides access to all departments of the office, making it unnecessary to pass through other departments.

Grouping Organization Elements.—After planning for the basic circulation and fixed facilities and services, the location of organization elements in the office plan is the next step. These may consist of the executive group, sales, finance, engineering, production, research, purchasing, and such, each with relationship to one another as to work flow, and with consideration to the type and amount of office space needed for each function.

The grouping of these elements of the office is really a graphic portrayal of the organization chart, were it not for the expression of space occupied and the location changes dictated by the flow of work. This plan is called a schematic layout and includes the four following groupings.

1. *The Top Executive Section* of the office, which is usually a specially planned office layout, as the number and size of private offices vary with the size and type of a business.

Variations in individual requirements for conference rooms, visiting officers' rooms, waiting rooms, and special facilities for executives and their secretaries, etc. make it necessary to devote special study to this phase of office planning.

2. *The Divisional Heads Section* of the office, which usually lends itself to standardized planning, where rows of private offices with inside or adjacent assistants and secretarial space is provided. (See Figure 75.)

3. *The Operating or Production Section* of the office, which usually lends itself to standardized planning, where rows of private offices with inside or adjacent general office space is provided. (See Figure 76.)

4. *The Service Sections* of the office and special departments which all require special planning, since their locations must be convenient to the activities being served and adjusted to the space allotments for each unit.

Steps in Office Planning.—A floor plan is the top view or the representation of the floor area drawn to a scale, the scale being 4 ft. to the inch ($\frac{1}{4}$ in. = 1 ft.) or 8 ft. to the inch ($\frac{1}{8}$ in. = 1 ft.). Usually, copies of the floor plan may be obtained from the rental agent of the building or from the owner. It is advisable to check the dimensions on the copies with a ruler as they may be distorted due to the method used in reproducing the copies. Any variations in the scale may seriously affect the use of the plans when accurately drawn templates or models are used to spot the equipment on them.

These floor plans should be checked with the locations that they represent in order to be sure that the exact location of all the physical facilities—radiators, walls, plumbing, electrical outlets—are indicated in the exact position that they appear in the “actual.” Whenever changes in the facilities have been made, they should be clearly indicated on the plans.

The following steps outline an orderly procedure for planning an office layout.

1. Make a detailed space, equipment, organization, and personnel survey of the company, as it exists, in order to know present and future requirements, locations of departments, work flows, types of equipment, and all other elements of the problem.
2. Make a detailed study of the new space to be used, type of space, orientation, access, structural, and mechanical conditions.
3. Prepare several schematic, line-drawing layouts of the new space for study. These drawings should show the location of departments and take into consideration limiting factors, work flows, and area requirements.
4. After analyzing all aspects of the several possible schemes, select the layout best satisfying all elements of the space requirements.
5. Consult with the various department heads in order to plan the detailed layouts of each of the departments. At this time planning standards should be developed and installed as a means of coordinating the various departmental solutions to a final office layout. These departmental layouts may be carried out with the aid of cardboard templates, models or through sketches to a blueprint form. (See Figures 77 to 79.)

Template Layout.—It is during the conferences with department heads that the template layout is most helpful. The template layout consists of an outline plan of the proposed space on paper or cloth, done to the scale of $\frac{1}{4}$ in. to 1 ft., mounted on a composition board to which can be tacked cardboard reproductions of furniture equipment, and machinery, in the same scale and prepared from information gained in the original survey.

Using the template board in the conferences with the various department heads provides a simple method for considering the various possibilities of equipment arrangement speedily. When the equipment and machines are properly located, the templates are tacked down in place (map tacks serve this purpose). Various colored templates are used, such as yellow, to indicate present equipment; green, to indicate new equipment; blue, to indicate locations provided for future expansion, etc. Partitions are indicated by strips of paper cut to scale, bearing the symbol of the type of partition shown. The template layout has proved to be the best method of working out the office layout problem of large open areas.

Black cross section paper with white graph lines may be used when photostat copies are to be made. The templates are made from white cardboard and the equipment size and name are marked on them in black ink. The physical features, aisles, etc. may be indicated by colored paper, preferably red, pasted in the proper positions on the template. The negative print shows a white background, with the physical features and equipment appearing in black.

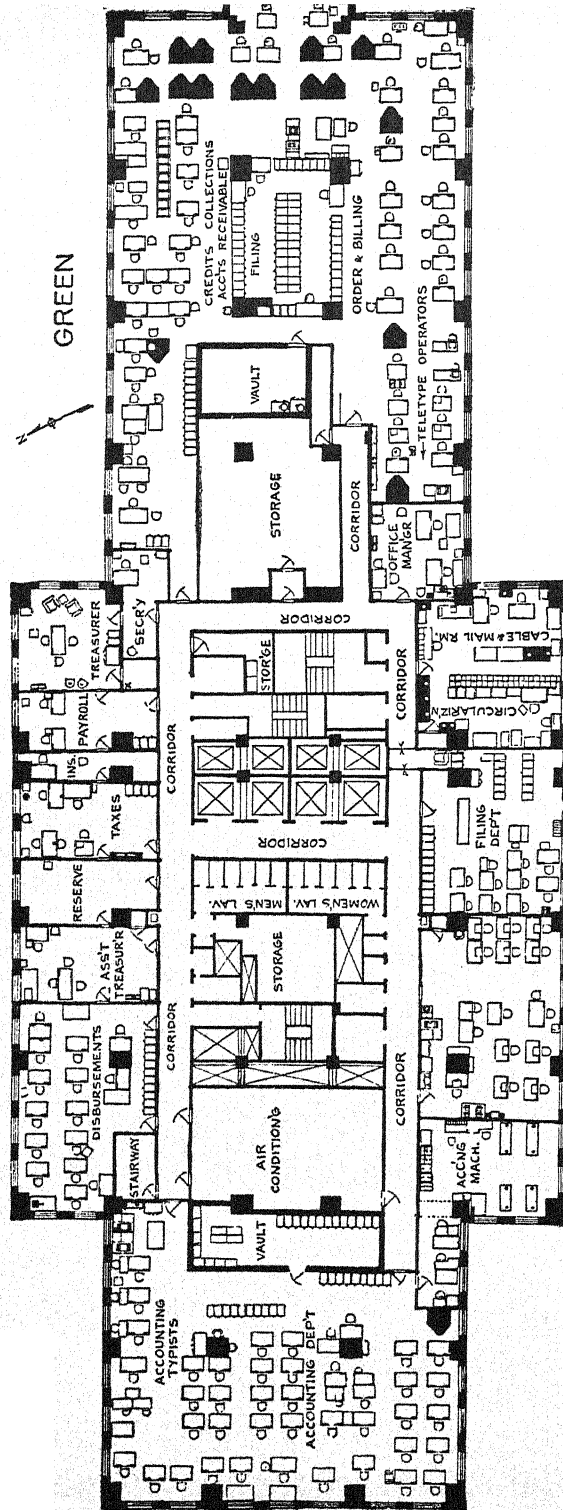


Figure 77a. Template Layout

Template layout for one floor of American Cyanamid Co. offices, Rockefeller Plaza, New York. The template layout consists of an outline plan of the office space, on a scale of $\frac{1}{4}$ inch to 1 foot, to which can be tacked cardboard reproductions of equipment and machinery. The template layout aids tremendously in working out with the department heads the various possibilities of equipment arrangement.

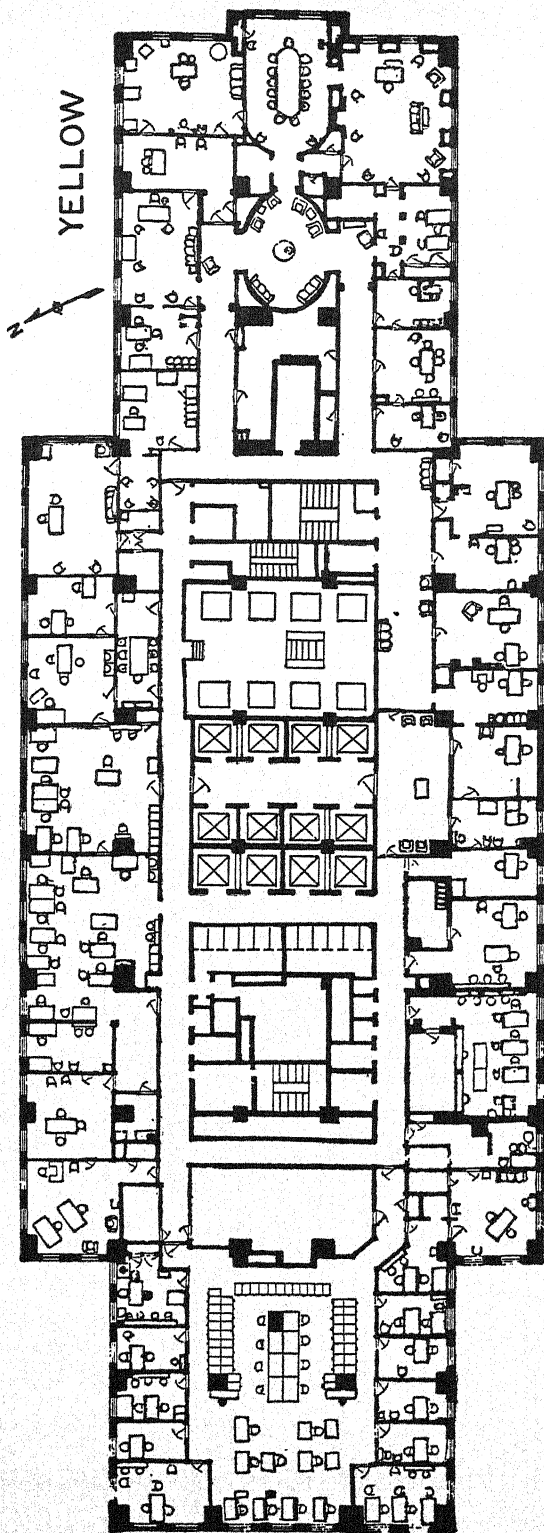


Figure 77b. Template Layout

Template layout of another floor of American Cyanamid Company offices. Various color templates are used, such as yellow, indicating present equipment; green, indicating new equipment; and blue, indicating location provided for future expansion. On templates, partitions are indicated by strips of paper cut to scale, bearing the symbol of the type of partition shown.

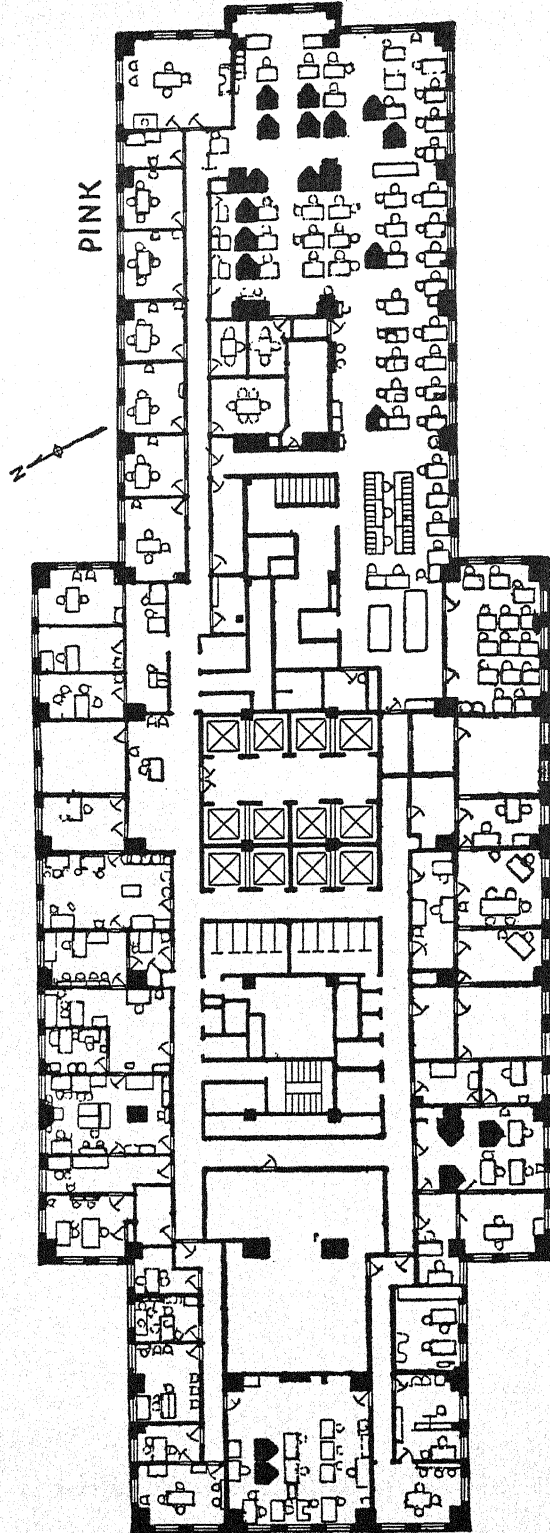


Figure 77c. Template Layout
 Template layout of another floor of American Cyanamid Company offices.

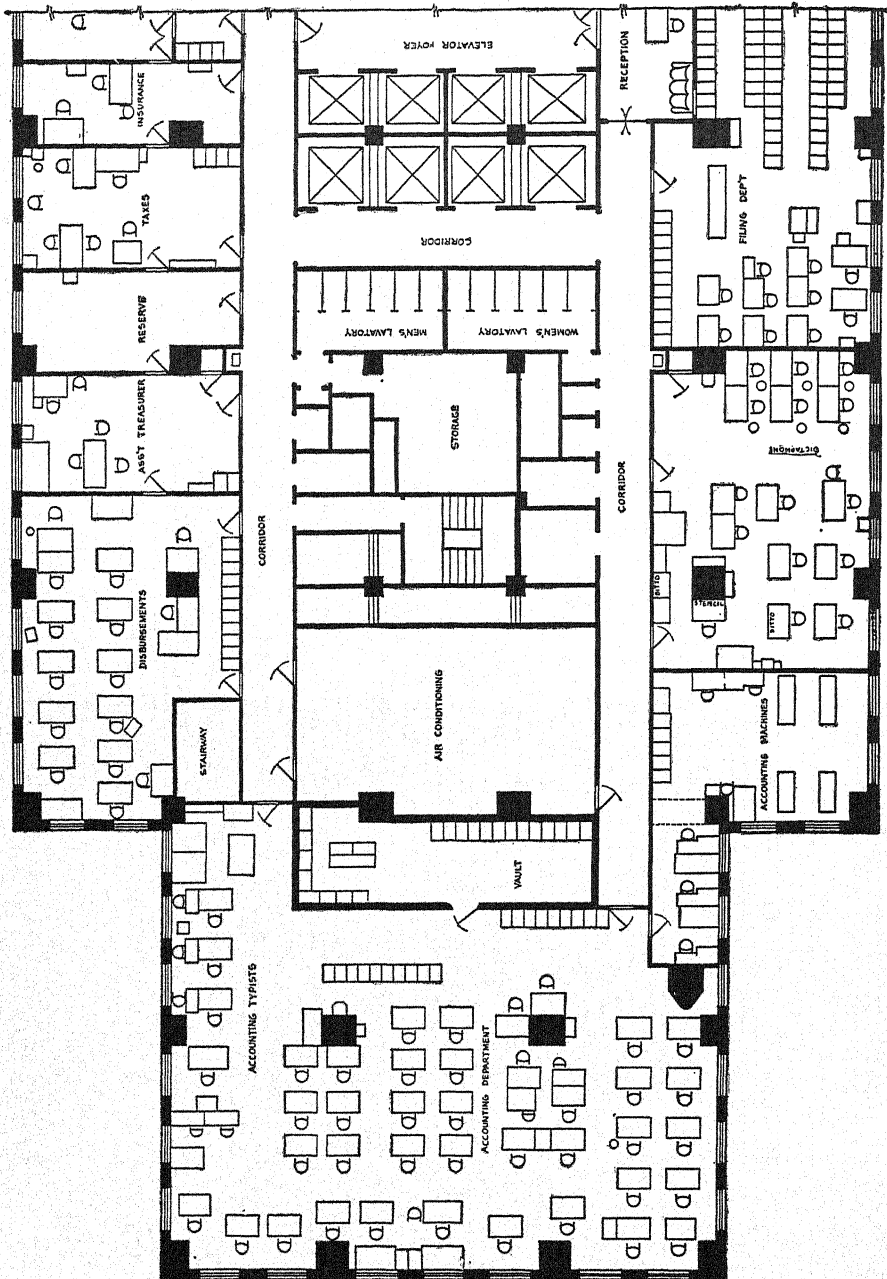
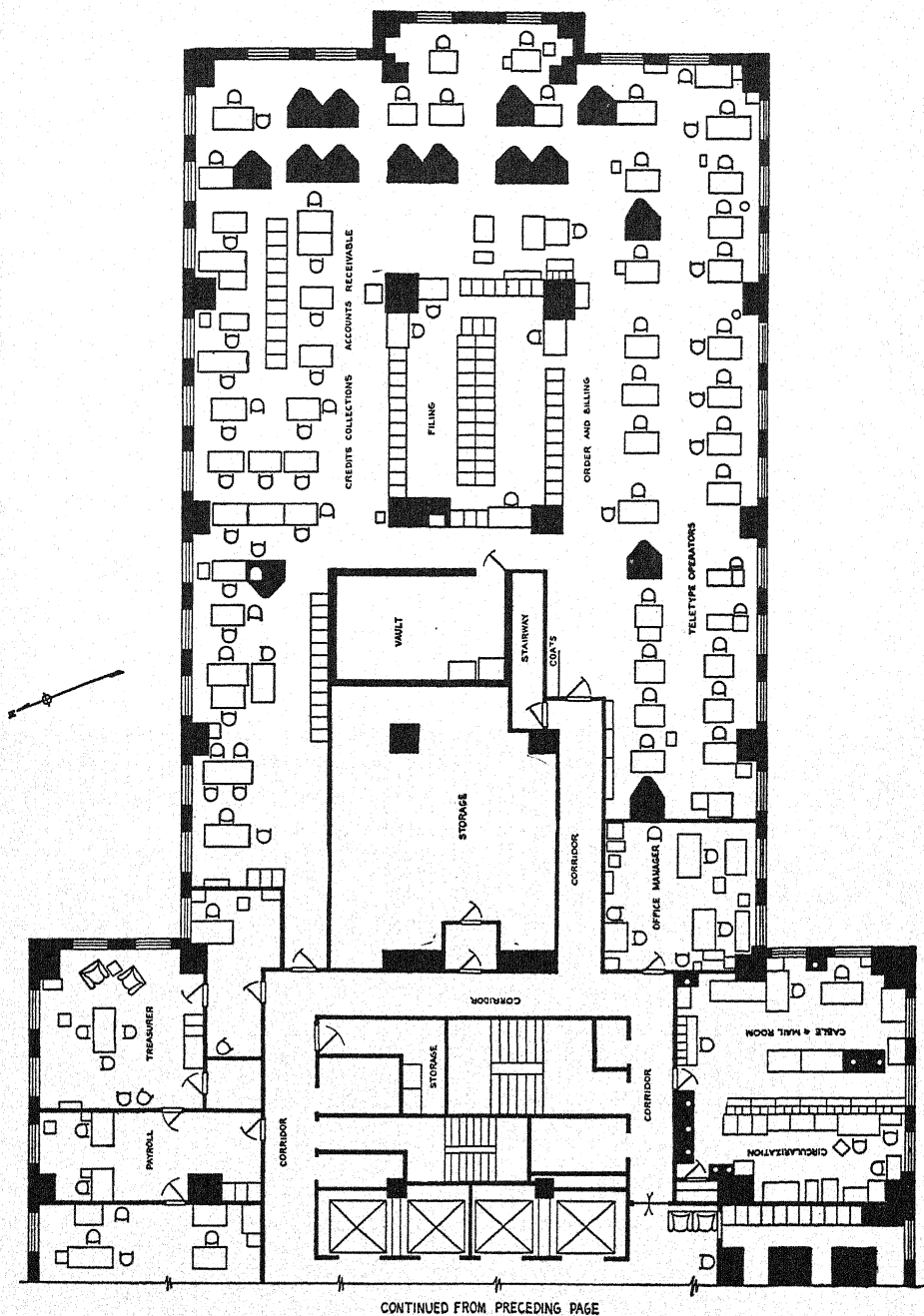


Figure 79a. Final Office Layout



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Figure 79b. Final Office Layout (*continued*)

Testing the Layout.—The practicability of the new or revised layout can be ascertained by submitting it to the department heads. Their suggestions, criticisms, and approvals are necessary and it is imperative that their wholehearted support be given to the project. Unless the department heads have been working closely on the layout during the preparation stages, it may be necessary to “sell” them. After an agreement has been reached, their signed approvals should be indicated on the plans. The recommended plans should then be submitted to the management for their approval. Then the final layout should be prepared and copies submitted to the department heads, movers, telephone company, and building craftsmen.

Scale Models.—The use of scale models in three dimensions is becoming prevalent in the layout of offices. The advantages accrued by using models are:

1. Permit full visualization of equipment and storage areas.
2. Anticipate illuminating problems.
3. Easier to detect “bugs” in the layout than when templates are used.
4. Easier for all interested personnel to visualize the location of equipment, furniture, etc., and thereby participate in the study.
5. Permit an over-all picture of operations that cannot be otherwise obtained.

Magnet-cored plastic models may be used on plastic sheets that are backed by metal plates. Their use eliminates tacking or cementing as they remain in position, but can easily be moved whenever necessary. The use of plastic sheets that are etched with 1-in. squares enables one to easily place the models in the proper location and eliminates the necessity of scaling distances from photographs or photostats.

When more floors than one are being studied, the floor plans may be assembled to represent the building by using L-shaped and U-shaped plastic supports. After the replica of the building has been made, one can visualize the layouts of all floors.

Design of Atmosphere.—Good office layout requires design for atmosphere in the reception room, the conference room, and executive offices, and should consider the effects of an over-all color scheme and standardized appearance. The over-all color scheme is usually created by a wall, ceiling, door, trim, and window paint color, and furniture, fabrics, upholstering materials, and color. Partitions and rail construction of a standardized design add to the businesslike atmosphere.

Design of reception room for product display, seating, reception control, company name, and pleasing appearance often warrants the preparation of sketch studies for consideration, as do the designs for conference room, modern and traditional private offices, etc. (See Figures 80 to 84.)

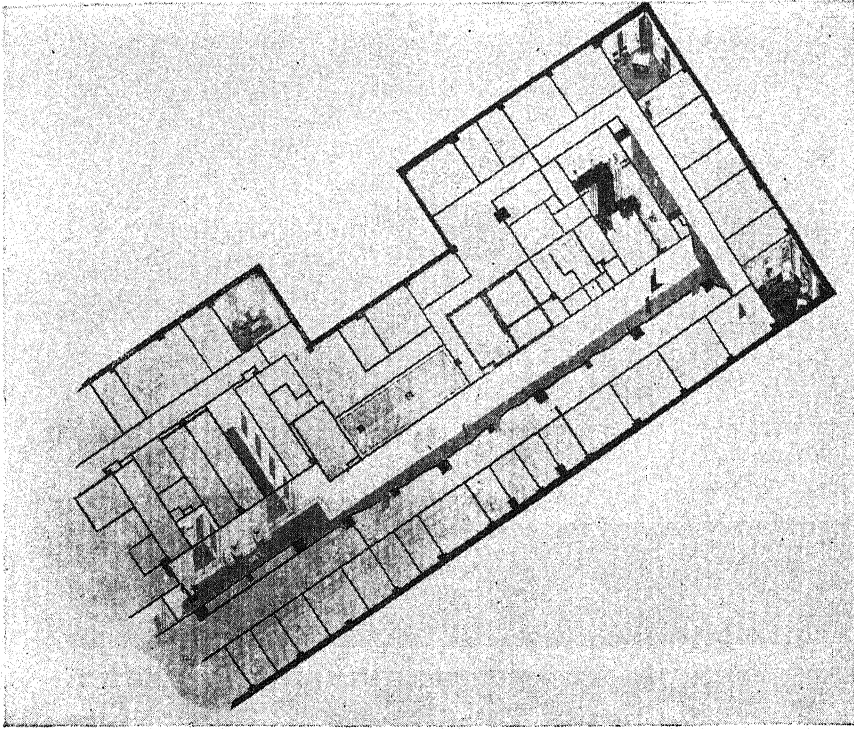


Figure 80. Isometric Drawing of an Office—showing the location of the reception room, conference room, and modern and traditional private offices

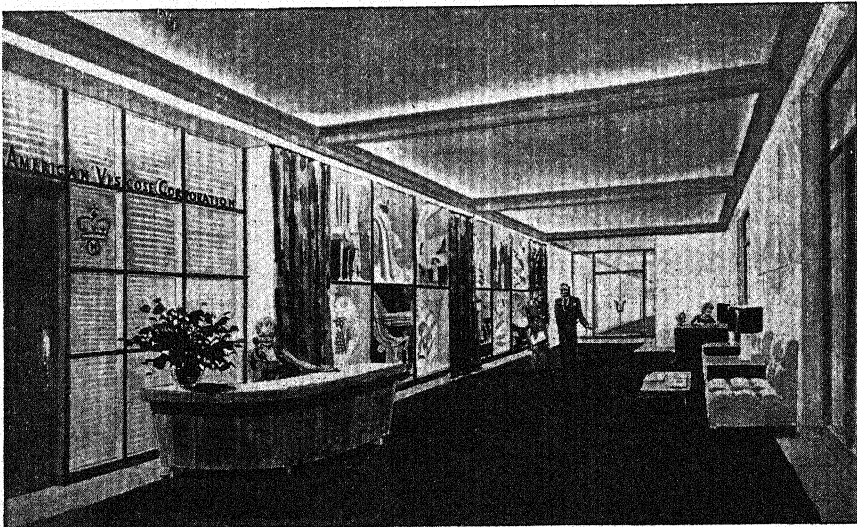


Figure 81. The Reception Room

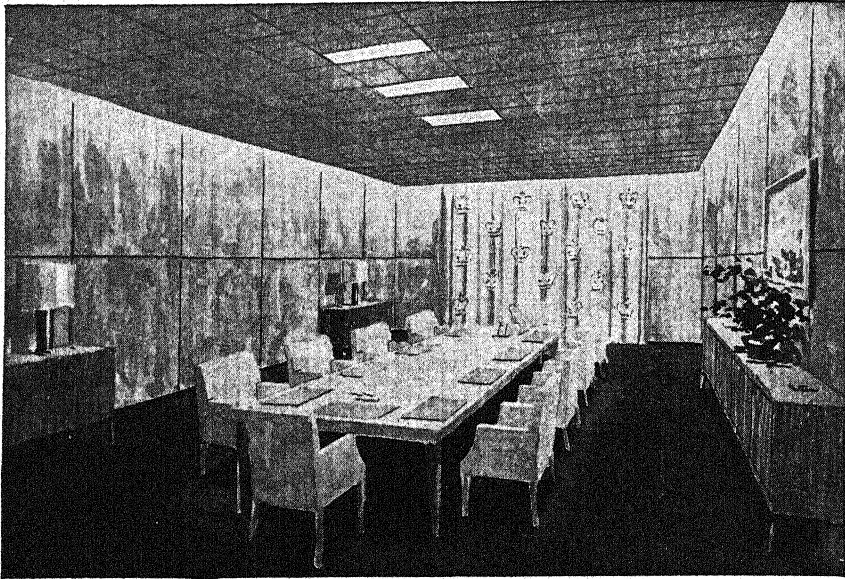


Figure 82. The Conference Room

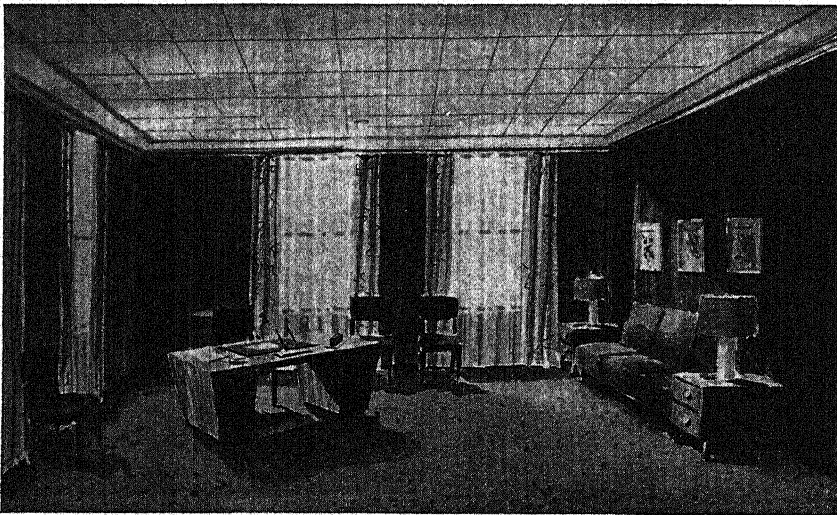


Figure 83. The Modern Private Office

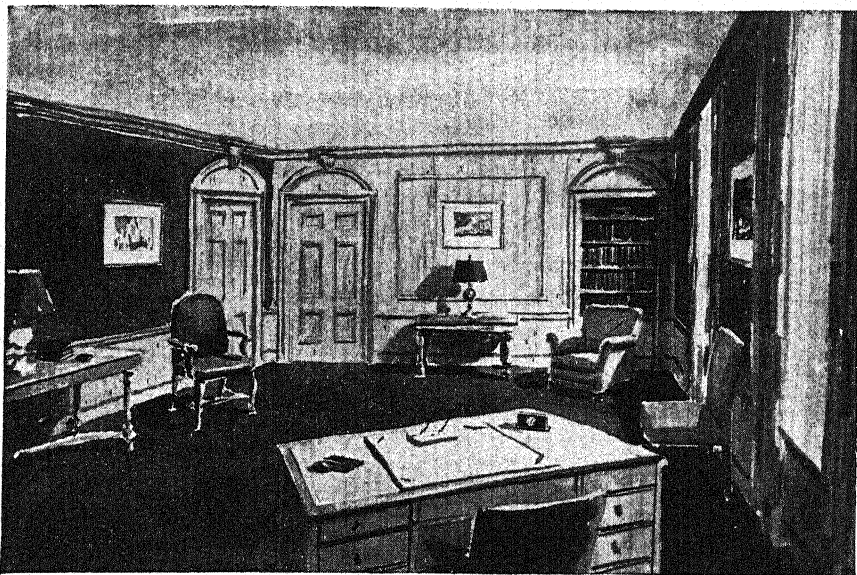


Figure 84. The Traditional Private Office

Working Drawings and Specifications.—After approval of the office layout, the types of partitions, lighting layouts, electric and telephone outlets, sound, air conditioning, and the many elements involved in carrying out the plan, working drawings and specifications are prepared to show the extent of the work involved. Working drawings outline the location and quantity, and specifications describe the method of installation and the quality of the various materials to be used to carry out the office layout.

Working drawings are usually prepared to the scale of $\frac{1}{4}$ in. or $\frac{1}{8}$ in. equals 1 ft. They show location and type of partitions, electrical layout and control, heating through radiator locations or ducts for the distribution of tempered air, ventilation and air conditioning layout, telephone locations, water coolers, wash basins, etc. (See Figures 85, 86, and 87.)

Specifications in the office layout refer to and describe the work outlined in the working drawings and, in addition, describe the work of floor covering, moving, telephone installation, etc. With proper working drawings and specifications, the extent of the work is clearly known by the owner and the contractor, and there is, therefore, fairness in bidding.

Budgets, Estimates, and Letting Contracts.—Budgets can be prepared from layouts or working drawings by taking off the quantities of materials needed for the work and by using a known unit price for supplying and installing materials.

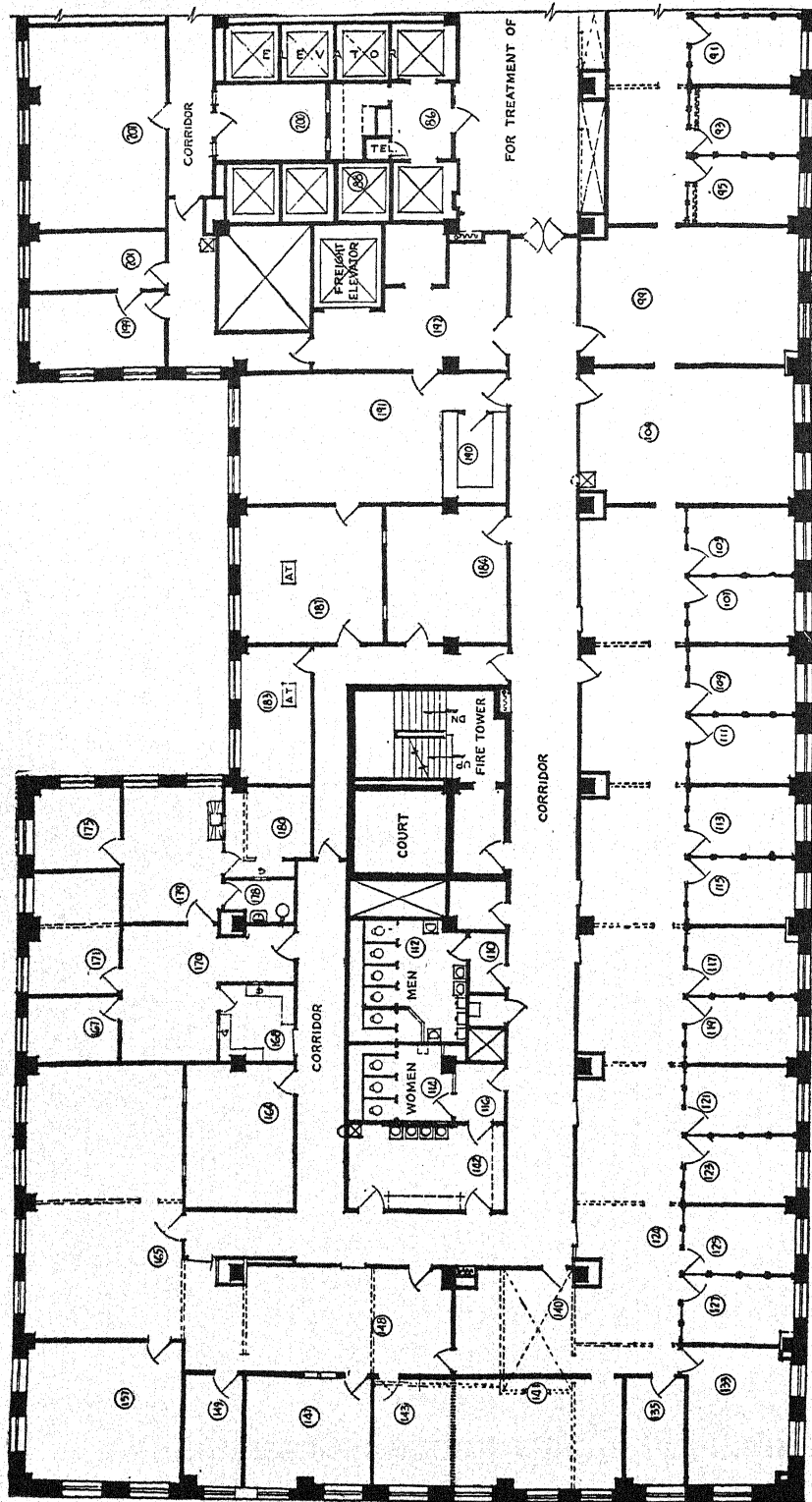


Figure 85a. The Structural Working Drawing

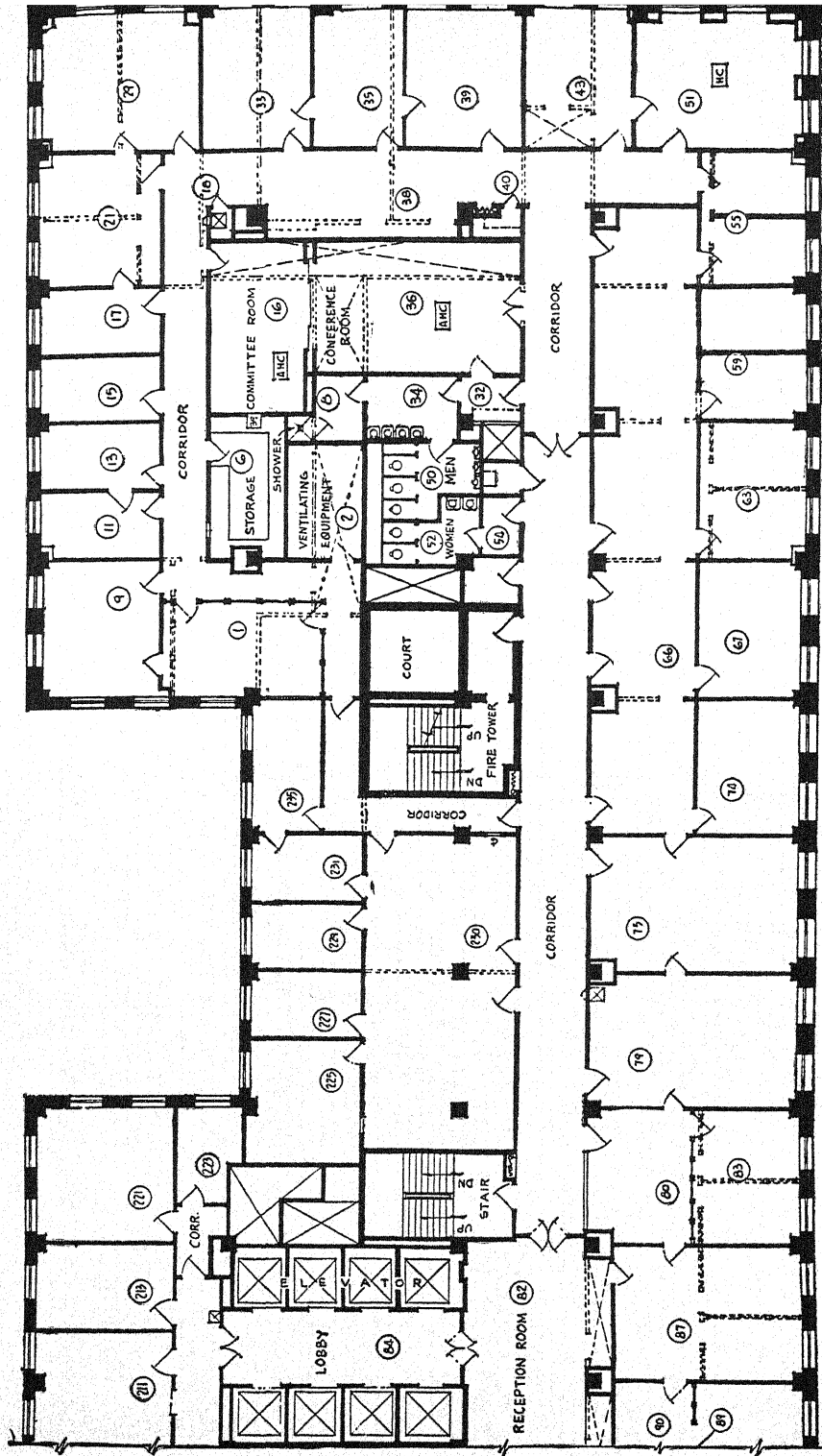


Figure 85b. The Structural Working Drawing (continued)

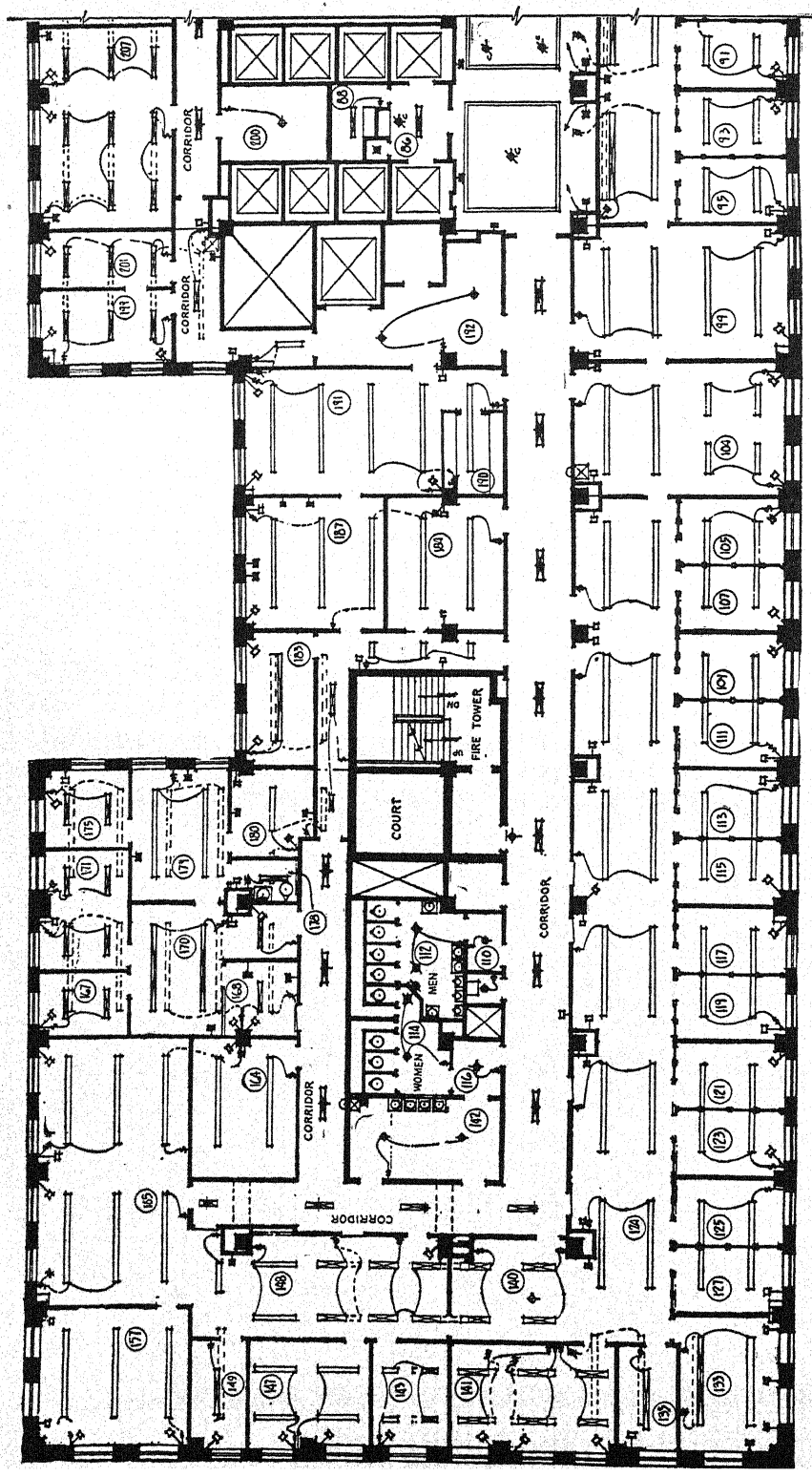


Figure 86a. The Electrical Working Drawing

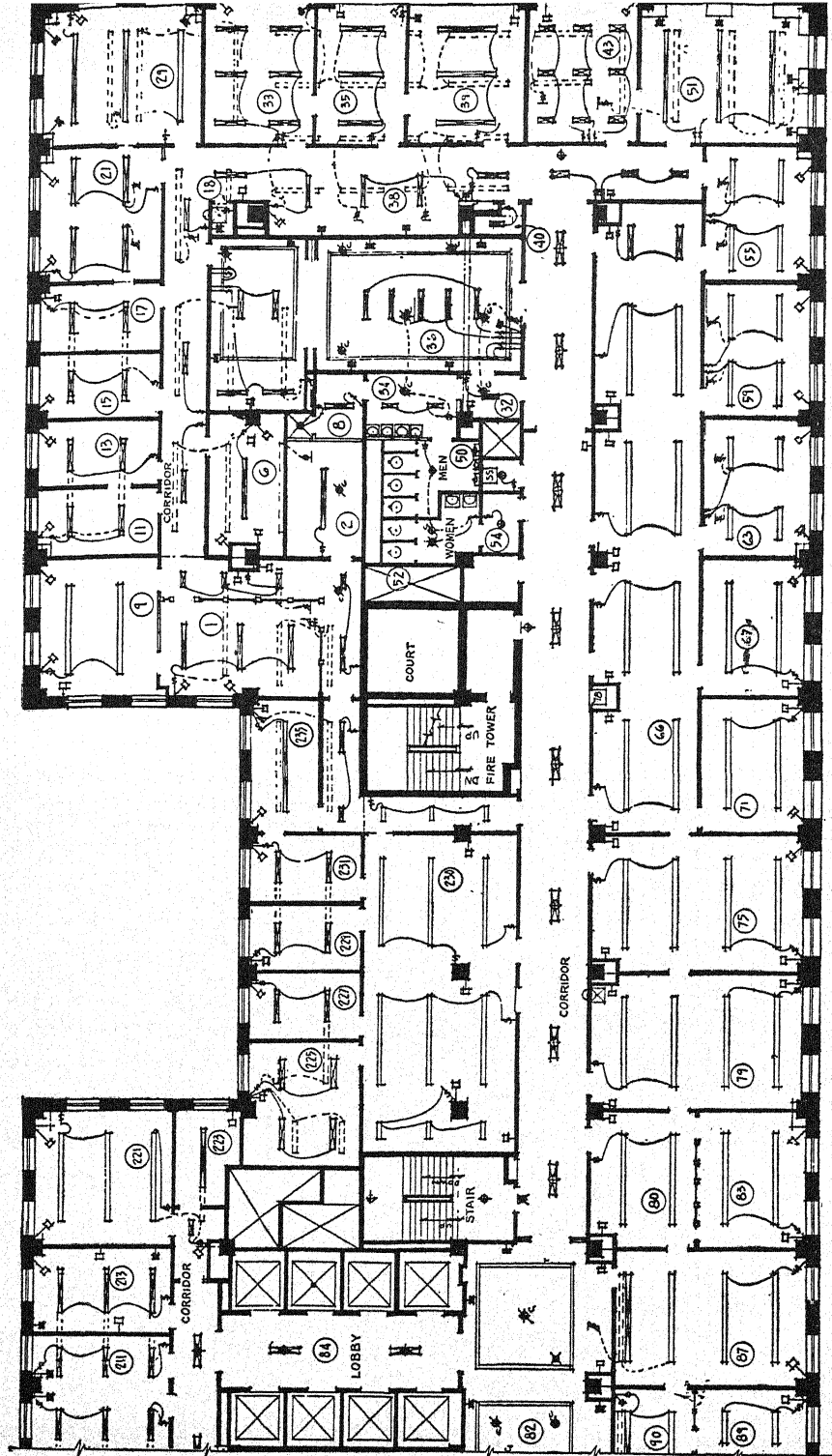
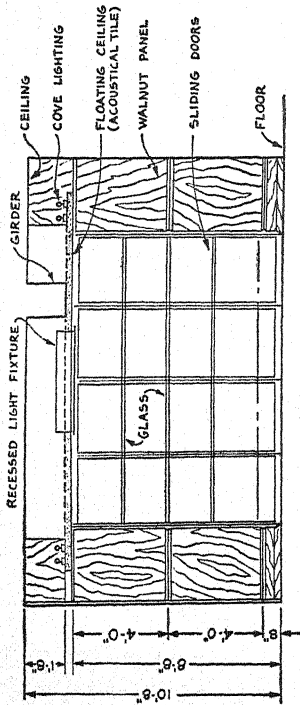
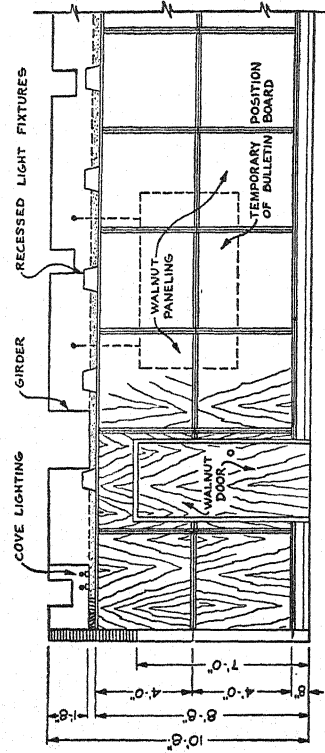


Figure 86b. The Electrical Working Drawing (continued)

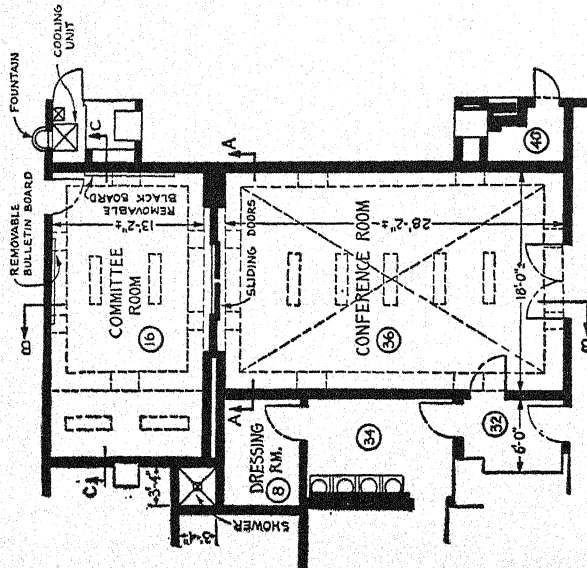
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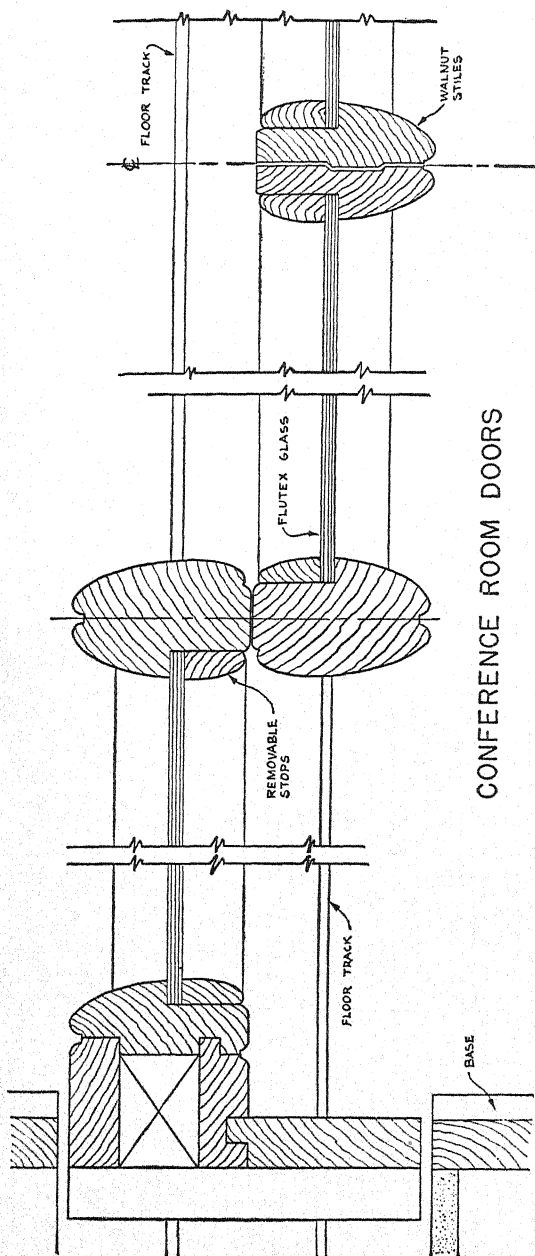


SECTION A-A



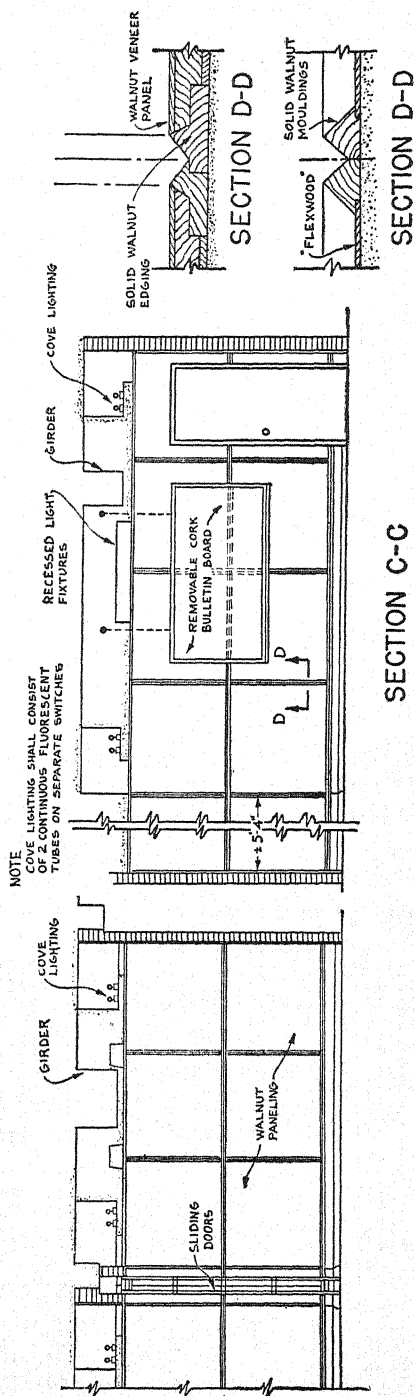
SECTION B-B





CONFERENCE ROOM DOORS

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ALTERNATE FOR "FLEXWOOD"

Figure 87. The Conference Room

Estimates are secured from contractors based upon the plans and specifications after decision has been made as to what parts of the work are to proceed. Usually, three contractors of each trade are asked to estimate the work if contracts are to be awarded to subcontractors. Four or five contractors are asked to estimate the work if it is all to be given out as one contract.

Letting of contracts usually requires the securing of insurance certificates, permits, and municipal approvals in connection with the work, so that professional counsel is often desirable.

Supervision after the Letting of Contracts.—To carry out the work, constant supervision is required to see that installations are made by the dates stated in the working drawings and specifications; to approve contractors' requisitions as the work progresses; and to approve substitutions, samples, and details of the work, until the office layout is completed, equipment installed, and the office move is finished.

Maintenance and Control.—The space administrator's work on the office layout is really never finished, for it is his job to keep the space situation balanced in relation to all elements of the office, and to satisfy daily space requests and related requirements. Each of such requests must be followed up for justification and to determine whether or not it can be satisfied with a minimum of disturbance to the office as a whole. When changes in the office are required to satisfy a space problem, the space administrator acts as coordinator for all elements of the office layout. It is during this maintenance period that the integrated office layout, which makes possible the use of standardized equipment and planning, presents an opportunity to save time and money for the company.

The personalized office layout is giving way to the more flexible integrated office plan, and it has really grown hand-in-hand with organization, procedure, and personnel improvements in the company. The space administrator might find it helpful to install a recurring reporting system. At intervals of 30 or 90 days, he should send out a space and personnel form to those responsible for the activities to which he is assigning space. The information which these completed forms contain should serve to keep him fully informed. A suggested form for securing this information is shown in Figure 88.

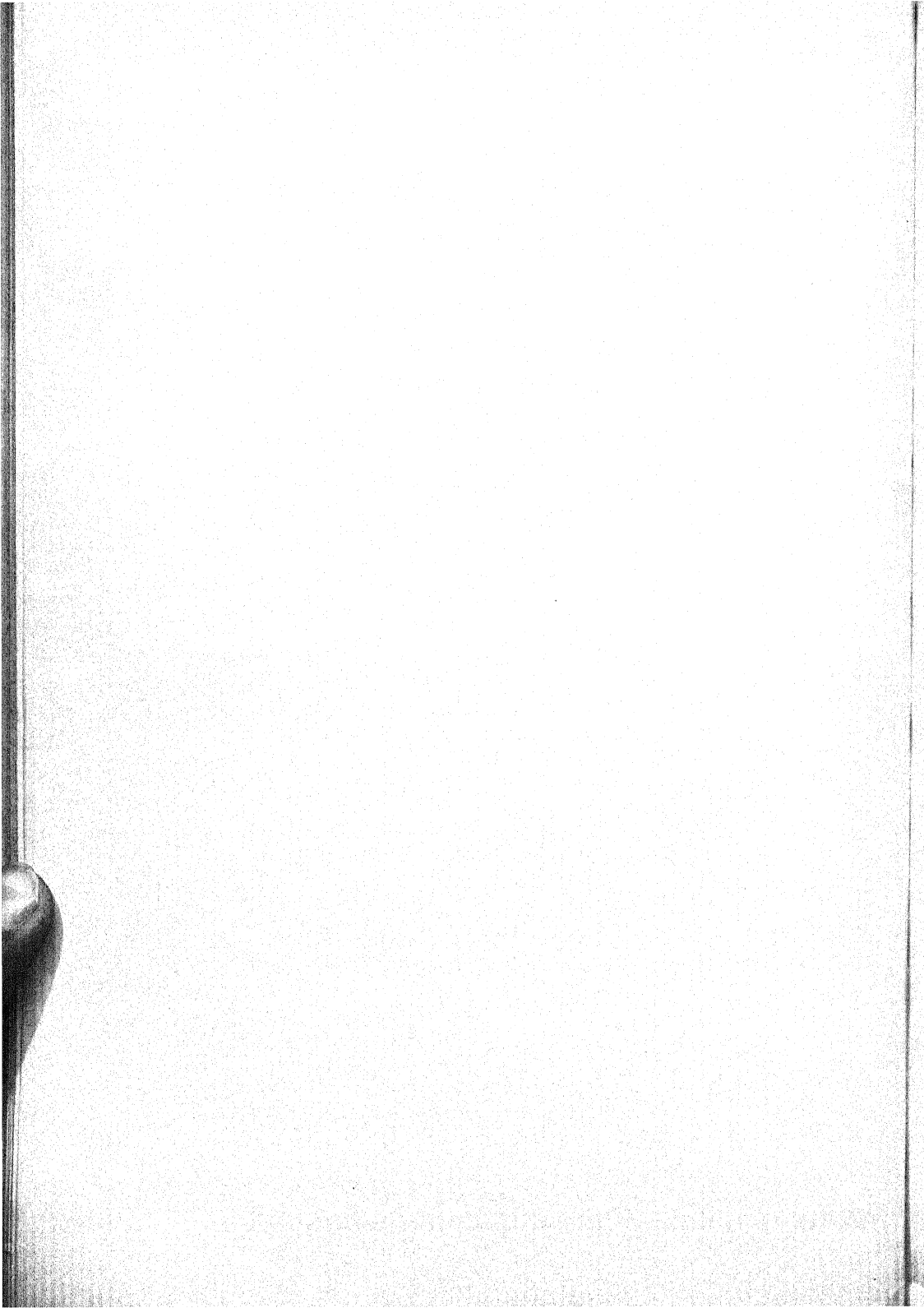
With business interested in reducing overhead, increasing office efficiency, and in developing more desirable and more democratic office working conditions, the problems of office layout become an active field of the office manager's responsibility in his efforts to provide for:

1. Elimination of congestion in the office
2. Better supervision of the employees

3. Straight line flow of work with consequent elimination of bottle-necks and the shortening of the work cycle
4. Economical use of space
5. Increased volume of work with decreasing number of employees
6. Better appearance of office
7. Establishment and maintenance of daily schedules
8. Improved quality of work

PART IV

THE OPERATION ELEMENT



CHAPTER 14

OFFICE STANDARDIZATION

Principles of Standardization

What Is a Standard?—There are many definitions of a standard; some, unfortunately, confusing standardization and simplification. Adequate definitions of standards are worded as follows:

A standard under modern scientific management is simply a carefully thought out method of performing a function, or carefully drawn specification covering an implement or some article of stores or of a product. The standard method of doing anything is simply the best method that can be devised at the time the standard is drawn.¹

One briefer and more succinct is:

A standard represents the best current knowledge of a practice or an item to meet the necessities of current conditions.²

A standard is merely a criterion comprising characteristics attached to a process or thing by which it can be measured or estimated. The process of setting up standards is called standardization.

Simplification.—Simplification generally is carried out along with, or directly preceding, standardization. The two are sometimes loosely and erroneously considered as synonymous. Simplification is the reduction or elimination of certain types, grades, or kinds of items so that manufacture may be concentrated on fewer products. We often hear people say that they have simplified their line of goods by eliminating a number of items and have standardized on such a number. This is not correct or accurate. They have not standardized on such a number of items, but have limited themselves to such a number. Unless they set up standards on the limited number of items, it is not standardization. However, in most cases, after simplification, standards are set up on the limited items and standardization has been accomplished.

Simplification reduces the variety of items; standardization insures the uniformity of the remaining items.

¹ Morris L. Cooke, *Bulletin Carnegie Foundation for the Advancement of Teaching*, No. 5, p. 6.

² Office Standards, *NOMA Bulletin*, No. 2, April, 1946, p. 4.

Requisites of a Standard.—There are five important requisites of a standard:

1. Accuracy and precision
2. Workability
3. Suitability
4. Flexibility
5. Acceptability

ACCURACY AND PRECISION.—Standards, when they are formulated, are the outcome not of a single person, but represent the thoughts and ideas of a group, leavened with the current knowledge and information available concerning the practice or item. A standard must meet certain basic requirements without which it becomes a hindrance rather than an aid to progress.

In the first place a standard must be correct, accurate, and precise. For example, if a work requirement is set too high or too low it will obviously be incorrect and as a standard will have little or no value. A standard not only should be accurate but should have the proper degree of precision. This is particularly true in standard specifications for dimensions or for percentages of ingredients where the degree of precision is controlled by specifying tolerances. In a specification for a desk, certain dimensions are given with an allowable plus or minus. Two considerations should enter into the degree of precision called for. First, a precision beyond which there is no increase in utility or workability is unnecessary and costly; and second, precisions should not be called for which cannot be met by current manufacturing processes. A specification for the solvent for duplicating fluid designating a mixture of 80% of one material and 20% of another obviously should not require that these percentages should be precise to within a tenth of 1%.

WORKABILITY.—In the second place a standard must be workable. A standard may be unworkable due to something within the standard itself or due to outside conditions which make it inoperative. As is seen, too great a precision which cannot be met by current manufacturing processes would make a standard unworkable. Nor is an incorrect standard workable. A standard may be written in a confused and inconcise manner or be too indefinite, giving rise to varying interpretations which would impair or destroy its workability and usefulness.

A standard for a freight car calling for cars of certain height and width would be unworkable if these dimensions exceeded the clearances of overhead bridges or the spacing between tracks. Standards calling for the epitome of perfection are unworkable due to human nature. A standard could be formulated for an office desk or other kind of office furniture, specifying certain dimensions and particular kinds of wood, and also specifying various stresses which it must withstand which would be entirely unworkable due to the strength characteristics of the materials selected.

SUITABILITY.—In the third place a standard must be suitable. A standard may be correct, accurate, and workable, but still be unsuitable. Changing conditions very often make yesterday's standard unsuitable for today. Our antiquated system of weights and measures, though standard and workable, today is unsuited to conditions which could be met much better by use of the metric system. Equipment standards could be unsuitable, particularly from the standpoint of size, shape, or color. A standard 60-watt bulb would not be suitable if it did not meet certain light requirements. Kidney-shaped desks are unsuitable in large clerical areas. Color of paint would not be suitable if the reflectivity was so low that it lowered the light intensity level too much. Again, a work level standard setup for answering correspondence in Section A might be unsuitable in Section B due to a variation in the set of conditions in the two sections.

By suitability is also meant the modification or adjustments required in setting up a standard (without changing the accuracy or workability), which will insure the maximum use and minimum friction especially where the standard is integrated with, and has an effect upon, other standards used in a broad operation. For example, if a standard of light intensity is set for a clerical area, any standards formulated for lighting fixtures, spacing of fixtures, wattage of bulbs, color specifications for ceilings and walls must all be adjusted and suited to meet this requirement.

FLEXIBILITY.—In the fourth place, a standard must be flexible. Flexibility can be accomplished in several ways. Tolerances, which we noted must be made great enough to make a standard workable, might be made greater without affecting the standard, thereby making it more flexible. Wider tolerances might allow some manufacturers to make an item who are not equipped to make it to closer tolerances. By making the scope of the standard as broad as possible, greater flexibility is obtained. It is unnecessary to write a separate specification for each weight and color of sulphite bond paper. A standard specification is written for sulphite bond paper and a table is incorporated within it to provide for the variations in properties due to different weights and color.

Some standards are drawn allowing alternate methods. This is true in many cases of standard methods of testing. A standard method may specify testing with a type of testing machine with alternate methods using other types of machines. In some cases where correlation is possible, conversion factors will be specified. For example, in the testing of temperatures, where either Fahrenheit or centigrade thermometers may be used, a formula allows the result taken on one scale to be converted to the other. In cases where alternate methods are allowed but no correlation is possible, the specification states that the particular method used should be stated when reporting the results. This type of standard allows greater flexibility because it can be

used by a greater number of people having different models or types of equipment available.

ACCEPTABILITY.—Finally a standard must be acceptable. A standard may be accurate, precise, workable, suitable, and flexible, and yet not be acceptable. Manufacturers may adopt standards which are not acceptable to consumers; consumers may adopt standards unacceptable to some manufacturers; management may set up standards not acceptable to the workers. The reasons for this unacceptability are almost as varied as human nature. The best way to gain acceptability by all groups is to have all groups represented and taking part in the formulation of the standard. More than acceptability is obtained in this manner. Broader experience and wider views are brought into play and out of these a much better standard is evolved.

What Is Measured by a Standard.—Anything which can be measured and where a reference is desired can be standardized such as work requirements, work routines, dimensions, qualities, amounts, conditions, safety and health, etc. The basic types of standards are:

1. Work
2. Methods
3. Tools
4. Products
5. Conditions

WORK.—Work standards may be set up for machines, or for men, or for men operating machines. In this last case the standard is usually governed by the capabilities of the men rather than of the machine. Work standards on motors are familiar to us as rated horse power. The ability to produce this work through a definite minimum length of time, as for example an aviation engine, would be a performance standard. A work standard for an automatic tabulating card sorter is the number of cards which the machine can sort per unit of time.

Examples of work standards applied to men would be the number of bricks which should be laid per day, the amount of correspondence that should be filed per hour, or the number of interviews made per day. In all these cases, the time is evaluated for performing one unit of the work, the number of units is then figured for any desired length of time, such as per hour, per day, per week, per month, etc. When a man uses a machine, the work standard is usually, but not always, governed by the man. For example, a work standard for a manually operated stamping machine is limited to the speed with which the man can operate, and not the speed which the machine is capable of delivering. Work standards for typing are not gov-

erned by the typewriter but by the dexterity which is possible in human beings.

METHODS.—A method or procedure is merely a way of doing something, of carrying through a function, generally outlining what and how to do it in a step-by-step routine. A method of teaching was developed and standardized during the war. It is known as Job Instruction Training and uses as a classical example the procedure necessary for tying the Underwriter's knot. In chemistry we find standard methods of analysis.

TOOLS.—In modern usage the word tools has broadened to include a great variety of things which are used in performing an operation in connection with work. We have both manual tools and machine tools. The product of one manufacturer may become the tool of another manufacturer. Hammers, screwdrivers, and saws are examples of the older manual tools; automatic drill presses and screw machines are examples of machine tools. Standards may be made to embrace any or all tools. In an office a typewriter may be considered a tool, and for them we have a standard keyboard. A pencil is also an office tool and these are made in standard hardnesses for different writing qualities.

PRODUCTS.—A great variety of products is manufactured to an equally great number of standards. Food is graded in accordance with certain standards. Electric light bulbs are manufactured and sold in standard wattages. Screws and bolts are made with standard threads. Office filing cabinets are made in standard sizes.

CONDITIONS.—In a number of instances it is necessary to standardize certain conditions in order to make a test or to maintain health or safety or the morale of the workers. For example, in testing paper it is first necessary to expose it to certain temperature and humidity. At different temperatures and humidities, the physical characteristics of paper are different. In order to have comparative test results it is necessary to standardize on a definite temperature and humidity to which paper is conditioned before performing the tests. Standards may be set regarding the intensity of light, the floor space per clerk, the number of washrooms per hundred clerks, sanitation standards, safety standards; all of which are condition standards designed to affect the morale, efficiency, safety, or health of the worker.

Principles in Setting up a Standard.—The principles involved in setting up a standard are those of

1. Selection
2. Determination

SELECTION.—When a standard is being set up consideration must be given to just what should be measured. It is not necessary to measure all of the

characteristics, factors, or elements but only those which pertain to or contribute toward the accomplishment of the desired end. For example, a metallic alloy is used to make a product having definite strength requirements. It is noticed that this alloy contains impurities, two of which, if they are present in amounts over 0.05%, cause the strength to fall below the requirements. Therefore, it is not necessary to measure all the impurities or the metals in the alloy, but only the two affecting the strength and limit these to a percentage lower than 0.05. Only those characteristics essential to give adequate control for accomplishing the purpose of the standard should be measured. The tendency is generally to measure more than is required.

DETERMINATION.—Under this principle it is necessary to state what should be measured and how it should be measured.

When It Should Be Measured.—There are several conditions which should arise either singly or in combination before a standard becomes necessary or desirable. Some of these are:

1. When the volume or quantity of a product becomes large and uniformity is desired.
2. When repetitive operations are done by numbers of people.
3. When quality is to be maintained.
4. When variables need to be controlled.

Standards for radio tubes were not necessary until the demand required mass production. A work standard is not needed where a number of girls each type five addresses a day and require only a few minutes' time from other work. But if the typing of envelopes becomes so great that six hours or the whole day are devoted to this each day, then a work standard is desirable. If a pen-point is produced and sold as 14 carat gold, the standard of 14 carat gold must be maintained. When 6-in. tabulating cards are manufactured and sold, the allowable plus and minus variations from this dimension must be standardized.

How It Should Be Measured.—The following four points enter into the process of deciding how a standard should be measured.

1. The first step in setting a standard is to observe and study the items or process in the greatest detail and from every vantage point. Variations must be noted and the effects of these should be studied. Outside conditions must be studied if they have a bearing on the problem. The viewpoints of different people should be solicited.
2. From all of the detail assembled by observation and study, only those which are pertinent to the accomplishment of the desired end should be chosen. All factors and variations which do not affect the item or process

may be and should be left out of the standard. Their inclusion would obscure the standard and would lead to confused interpretation.

3. There must be means of measuring the selected factors if the standard is to be useful, particularly in cases of dispute. As much as possible means for numerical measurement should be found. Measurement by empirical means always introduces judgment which in itself is a variable. It is also necessary to specifically state how the measurements are to be made and under what conditions, if these have a bearing on the standard.

4. Finally, a clear, concise specification or procedure should be written giving all of the salient factors, their means of measurement, and the conditions necessary to be met. This specification or procedure, fulfilling also all the requisites outlined in the paragraph on tools, becomes the standard.

Kinds of Standards.—Standards are:

1. Basic units
2. Dimensional
3. Weight units
4. Quality determinations
5. Performance
6. Production accomplishments

BASIC UNIT STANDARDS.—Basic unit standards are those which have been set up by national or international bodies and accepted by all people though not always used by all people. In cases where the basic units are different, they may be converted one to the other by known factors, as for example, the metric system and the English units of weights and measures. Basic units have been adopted for length, area, volume, and weight. The foot-pound and horsepower are basic units of mechanical work. Other basic units are the ampere, ohm, and volt in electricity, the foot-candle for light intensity. Basic units of time are the minute, day, hour, etc. It is unfortunate that there is no basic unit standard for manual work.

DIMENSIONAL STANDARDS.—Dimensional standards are perhaps the most widely used and most accurately measurable of all. The most common standard of this type is the blueprint. Dimensional standards form a large part of many standards. Standards for desks, filing cabinets, chairs, tools, and equipment contain parts relating to various dimensions.

Area is also found in standards, such as square feet of floor space allowed for machines, offices, and clerks. When we use three dimensions, we arrive at volume and here we find standards such as capacity of tanks, the cubic feet of air handled by a fan, or the capacity of containers such as quarts of ink or gallons of mucilage. Many of these standards are so common that they are seldom regarded as such.

WEIGHT STANDARDS.—Weight standards are also found in everyday use and they also form a part of many standards. Much of our food is sold in standard weights. Paper is manufactured and sold in standard weights, such as 13, 16, 20 and 24 lb. per ream of 500 sheets 17 x 22 in. Other papers are also manufactured and sold by ream weight based on sheets of different sizes.

QUALITY STANDARDS.—Some quality standards are measurable by basic units; others are measurable by non-basic units; while still others are entirely empirical. Standards such as 14 carat gold or sterling silver can be measured by the weight of gold or silver in the alloys. An article sold as 100% wool can be measured by an examination of the fibers. A standard for a desk specifying mahogany wood can be measured by a microscopic examination of the wood.

Many paper specifications contain a clause such as "Color, cleanliness, and formation must conform to the standard sample." These qualities, as specified, are not measurable and therefore are empirical.

PERFORMANCE STANDARDS.—Performance standards are implied quality standards. When the qualities are difficult or impossible of definition and much less of measurement, recourse is taken in a performance standard. For example, a standard might be set up on electric light bulbs that they should last for 1,000 hours before failure—or that a paint should be capable of withstanding a definite number of washings before it is necessary to repaint—or that an ink shall show no fading when tested in a fadeometer for 24 hours. In such performance standards it is implied that these items have in them certain undefined qualities which will allow them to meet these requirements.

PRODUCTION STANDARDS.—These standards consist of two things; quantity and times.

A production standard may be the time allowed for a unit of work to be performed or the number of man-minutes or man-hours necessary to complete a unit of product, such as the man-hours to produce an airplane. Another type of production standard consists of output goals which have been set as standard such as 1,000 airplanes per month.

What Is Accomplished by Standardization.—A standard has a number of objectives among which the following are probably of greatest importance:

EFFICIENCY OF EFFORT AND MATERIALS.—The accomplishments of standardization are many and varied. By the use of standards there is less waste of materials and effort because of the development of greater efficiency. A greater all-over use of the product is gained through a greater ease

in marketing and distribution. Effort becomes easier through the constant practice made possible by standardized methods and procedures. Less effort is necessary because standardization eliminates or controls within prescribed limits a number of variables. Variables, unless controlled, cause waste of both materials and work time. For these same reasons the quality of the work performed and of the product is improved.

UNIFORMITY.—By standardization the uniformity of a product is more closely achieved. This uniformity allows interchangeability and replacement of worn or damaged parts. Interchangeability allows a greater convenience in use; for instance, the interchange of file drawers in filing cabinets. Uniformity which permits replacement of standardized parts greatly reduces the amount of material and money which would be tied up in inventories. Many people feel that uniformity brought about by standardization means only one type of article for everyone. This is erroneous because just as wide a variety for selection may still be available. The uniformity brought about by standardization is the uniformity of item after item of the same article or product. The uniformity accomplished in one make of car which allows replacement of parts does not limit selection because there are many makes of cars from which to choose.

CHECKING COSTS.—By the adoption of standard methods and procedures, the checking of costs is made easier and more accurate, as by standard cost accounting. Standards on raw materials permit a more accurate check on prices on competitive bids. Generally competitive bidding on a standardized commodity results in lower prices. These factors all contribute to lower prices of the products to the consumer, thus giving the manufacturer a better position in his market.

COMMON GROUND FOR DISCUSSION OF DIFFERENCES.—Standards, because of the numerical values and the judgment comparisons contained in them or the step-by-step detail of methods and procedures, afford a common meeting ground for discussion of differences. The use of value judgments is reduced to a minimum or to zero. It is possible, when standards are involved, to use a third party as an umpire, such as the use of independent assayers in the buying and selling of ores. Differences of opinion are usually due to ambiguity in the standard or to one loosely set up.

CONTROL OF OPERATION.—Unit cost standards, unit work standards, and to a less extent other types of standards provide a means for control of operations. A variation in a unit cost from the standard, for example, indicates to management a need for immediate attention. The flow of work through a plant is more easily controlled by methods and procedure standards. Without them the variations might not be apparent for some time, and before correction steps could be taken much damage might have been done.

SAFETY, HEALTH, AND MORALE.—Some standards are established solely from the standpoint of safety, health, or morale, but many other standards contribute to one or all of them. A good standard of illumination contributes to the safety, the health, and the morale of the worker.

The Use of Caution.—A standard is not a remedy that cures all ills. It is only a criterion to measure or estimate a process or item. A standard should never be considered as finished. An outmoded standard is a greater deterrent to progress than no standard at all. Standards must be periodically examined in view of constantly changing conditions to endeavor to improve them in line with increased knowledge.

Development, Installation, and Maintenance of a Program of Standardization

General Type of Authority Required for Operation.—Companies which have successfully operated a standardization program have found that the degree of success has been largely dependent on careful selection of personnel and detailed delegation of duties and authority to the unit. These two factors really constitute “authority of knowledge” and “authority of position.”

Authority of knowledge implies that the man who knows is consulted constantly, officially or unofficially, by those about him. It is to him that even the executives turn when questions arise. More frequently than not, when an executive is asked to exert authority, he counters with, “What does ‘X’ think?” This authority of knowledge is the backbone of the structure and the knowledge element must be an amassing of facts, not mere opinions.

Authority of position is best illustrated by the power which the president or owner of a business can exert. He can decide upon a course of action and direct execution of his decision. However, it should be observed that the bigger the man, the fewer decisions will he make, or be asked to make. Yet a standards unit must have sufficient authority of position that its work will not be unduly hampered by the ever-present reactionary or recalcitrant elements found opposing such work.

Application of the above authorities implies that the standards unit must be constituted of the right kind of people, established by executive order, and given sufficient prestige by reporting fairly high in the organization structure—direct to the president, if practical, but probably never lower than the executive vice-president or general manager.

Establishment of a Standards Program.—The first step should involve definition and delegation of duties and responsibilities. Publication of such a definition and delegation serves to inform the various operating units of the establishment of the standards unit and of the necessity for their cooperation. A good definition might include the following details:

STANDARDS DIVISION

Duties and Responsibilities

1. To establish standard procedures for the guidance of all departments in their operations. Such procedures shall:
 - (a) Express the policies of the company as to its relations with the public, its customers, and with its employees.
 - (b) Define the organizations by which these policies shall be carried out.
 - (c) Delegate the duties and responsibilities of each of its officers and departments in carrying out its policies.
 - (d) Prescribe the method of operation of each department to assure the most economical and effective results consistent with the policies.
2. To establish standards of physical equipment including environmental conditions, furniture, appliances and supplies. Such standards shall assure—
 - (a) Use of the most economical material for the purpose, purchased under the best arrangements as to price and investment which can be established.
 - (b) The minimum number of items consistent with economical operation.
 - (c) The maximum flexibility of equipment and personnel to meet unusual or peak loads.
 - (d) Safety of operation and health of employees.
3. To keep informed currently concerning departmental and commercial use and developments of office procedures, equipment, and supplies.
4. To make such inspections pertaining to its field of operation as may be requested by operating organizations or observed conditions may warrant.
5. To publish in suitable form, approved standards and furnish information concerning non-standard procedures or items authorized for specific applications.
6. To issue reports as may be requested showing results of work performed.

The peculiarities of an individual business may make desirable more detailed delegation, but in general the responsibility is broad and the delegation should be equally broad to permit unhampered operation. If the duties and responsibilities are built up with too much detail, there is too

much opportunity for "passing the buck." The authority of knowledge is, and must be, the main approach to the problem.

Organization for Operation.—Having duties and responsibilities defined, the standards organization structure and type of approach for efficient operation must next be determined. Obviously the size of organization must fit the business involved. In a small business an adequate program can be carried on by one man—even by one man devoting but part time to the work. From this simple setup, standards work can be expanded into large units. Large corporations with widespread operating areas and subsidiary activities to be correlated into a master plan probably will require a unit sufficiently large to require a functional setup of its own.

For this larger unit, two forms of standardization organization have proved successful, each of these two types approaching the problem in a different way. One might be termed "bureaucratic" and the other "democratic."

BUREAUCRATIC STANDARDIZATION.—In this form, an organization of trained experts is set up to study conditions and establish standard procedures and equipment. Successful operation presupposes that operations can be broken down and specialists assigned by types of procedure and equipment involved. Such an organization might be established following an organization chart as shown in Figure 89. The magnitude and character of operations would be the basis for determining how the functions might be combined or further broken down in terms of personnel required. The ramifications of corporate structure might even require separate groups for large isolated locations or for subsidiary companies. But the basic skeleton grouping of functions to be performed would still be about as shown.

The successful operation of bureaucratic standardization requires:

1. Provision of skilled operators—each an authority in his field.
2. Extensive research and knowledge of operating conditions and requirements. Each standards man must spend considerable time in the field learning conditions and watching operations.
3. Complete acceptance of standards by operating organizations based upon their confidence in the work of the standards unit.
4. Avoidance of autocratic approach. It is easy to drift into a dictatorial treatment of questions—constant guard must be kept to avoid this or the effects of the whole plan will be ruined.

The advantages of this form of organization lie in the speed of results possible and flexibility of action permitted by the centralization of authority—of both knowledge and position. Frequently the various experts, in conference, can suggest plans which otherwise might take days or even weeks to evolve when field investigations and other means of agreement are used.

When operated without autocracy it becomes, in the truest sense, "the authority of knowledge."

The weakness of the bureaucratic plan lies principally in the difficulty of obtaining experts for the work and in the assignment of sufficient time for field study and research. Added thereto is the ever-present requirement of

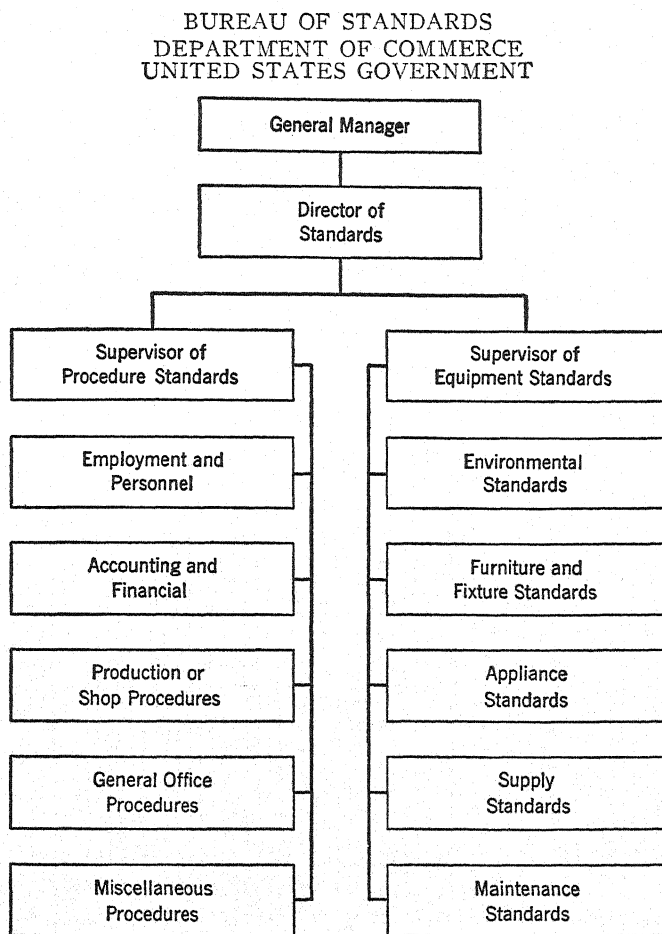


Figure 89. Bureau of Standards Organization Chart

avoiding the autocratic approach. Over a period of time each operator becomes so aware of the value of his skill and knowledge that his personality and method of operation must be above any criticism to avoid friction.

DEMOCRATIC STANDARDIZATION.—This is a form of mutual agreement operation in which each operating organization, having its own staff studying conditions and recommending its own practices, selects representatives to a

standards committee. To head the activity there is appointed a permanent director of standards who, with any necessary staff, stimulates and correlates the work. Such an organization can be formed about as shown in Figure 90.

STANDARDIZATION COMMITTEE

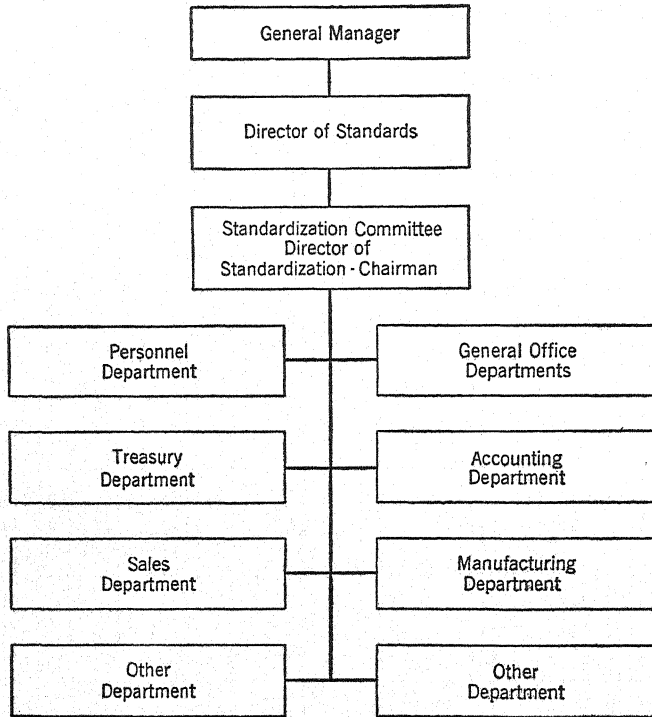


Figure 90. Standardization Committee Organization Chart

The magnitude and complexity of the business would dictate the representation on the committee. Subsidiary company representation can be set up by functions or otherwise as may be necessary. Successful operation demands that :

1. The committee chairman (or chairmen, if a breakdown is necessary) have a wide knowledge of the company and commercial procedures and equipment in order to act as a correlator (or mediator, in some cases, for divergent opinion is bound to occur).
2. That each representative be an authority in his functional field and have an appreciative knowledge of other fields which must be correlated to his own.

3. That each representative be delegated authority to agree to proposals on behalf of his organization.

One advantage of this form of organization lies in its play upon human nature. Each party to a mutual agreement becomes, consciously or unconsciously, a booster. He has had his say in court and, having accepted the verdict, is a proponent. Also an advantage is the dependability of results. With the pooling of knowledge and experience, the final conclusions are probably as sound as can be derived.

The disadvantages found are that most such committees are slow, ponderous, and exasperating in operation. The stimulator and coordinator runs out of ways to speed up conclusions—he has no authority to direct test work (done by operating organizations as approved by the committee). Department activities (or, in some cases, lack of interest) divert representatives' attention from the committee business—personalities do creep in despite most careful guidance and it is not difficult to see that the project can breed interdepartmental "politics."

RECOMMENDATIONS.—By and large, for an organization undertaking a new program of standardization, the committee (democratic) form of organization will produce the best results. Its slower action is offset by much "free publicity"—its results are accepted in much better faith—and there is less friction in arriving at conclusions. After the whole movement has obtained momentum, certain participants in the committee work may form ideal timber with which to build the faster moving standards bureau.

An organization which has accepted the principles of standardization of procedures and equipment will probably get best results from a bureau. Operating costs will be lower—results faster in realization.

Selection of Personnel.—In the triad of "analyze, organize, deputize" we now approach the operation of selecting personnel for standards work. Since personality and business training are both important, review of these elements will help. Obviously many of these qualities must predominate in any good employee, but reviewing them will clarify the approach to standardization.

1. Personal Qualities

Honesty—of purpose, to himself and his associates.

Loyalty—to the company, its management, its employees.

Curiosity—forever wondering (and asking) "why?"—always seeing what is going on and why.

Initiative—able to proceed smoothly, and without friction, on the course established. The faculty of seeing the right thing to do and doing it at the right time, and in the right way.

Judgment—ability to weigh all known factors, balancing them with past experience, and to recommend the right course.

Tact—the elimination (or insertion) of the personal element, as circumstances require.

Salesmanship—the use of expression, dramatization, and persuasion to sell his ideas both to his supervisors and to the people who must use them.

2. Technical Experience and Training

Knowledge of profession—a sound business training, specializing in business management. A complete understanding of fundamental principles.

Working experience—in which considerable latitude can be allowed, for possession of the personal qualities and fundamental knowledge permits less emphasis on experience. But it should be noted that the greater the experience the better and faster will come results.

Knowledge of business—in which, also, latitude can be allowed. An employee who is tactfully curious can learn the essential elements of the business as he proceeds.

Consideration of all these qualities leads to the obvious conclusion that such employees will also be in demand for general administrative, supervisory positions. It follows, therefore, that the standards unit will have a fairly high rate of turnover. Young men and women on the way up will spend some time on standardization and proceed to supervisory work with a broader conception of the business and of good business management.

Methods of Conducting Studies.—No one pattern or form of study will fit all conditions. Certain principles, however, must be observed. Since in the final analysis, judgment must be applied, as many facts as can be assembled must be gathered.

FACTS VS. OPINIONS.—In any problem, a clear tabulation of *all* the facts, set forth in such form that they may be rationalized, will give 90% of the answer. The other 10% will consist of opinion, tempered by judgment. This emphasizes the necessity for distinguishing between facts and opinions. Opinions have a definite value if based on fact and knowledge. Opinions are well worth while on aesthetic questions—what affects the personal element; but, fundamentally, facts will assure the right answer and less weight will be placed on the uncertain element of opinion.

ANALYSES.—In studying an existing procedure, the first factor must be determination of what is now being done. A careful diagram of each element of the procedure should be based upon firsthand study of the entire

routine. (A most useful adjunct to such studies will be found in flow charts outlined elsewhere in this book.) Associated with this diagram should be a step-by-step analysis of the advantages and disadvantages. What is good—and why. What is bad—and why. This operation itself will isolate the individual problems to be studied and will emphasize the desirable elements to be retained.

This same general treatment can be used for studying a new routine. First diagram what is to be accomplished—detail by detail. Next, study the associated procedures to assure coordination. Finally, develop the new procedure alone or tied in with any others involved. Base all of this on facts—facts of what must be done, and where, and by whom it best can be done.

EQUIPMENT AND SUPPLIES STUDIES.—In this field, methods of study on the 90% fact and 10% judgment basis must outline the elements which can be mechanized, and what forms or other items (supplies) can facilitate mechanization. Having determined the possible mechanization, specific machines should be studied to determine the operating characteristics (efficiency) and to form estimates of life and maintenance factors. (See Figure 91.) With these facts determined, ultimate operating costs per unit of production can be balanced against the objectives and the whole project rationalized to see that the end is worth the means.

An elaborate punched card (tabulating) system could be installed to calculate the payroll of 100 employees. It could calculate, post debits and credits and, finally, write the payroll sheets and checks. But the cost of the entire system would be considerably out of proportion to the results gained when simple calculating and posting equipment would do the same job at a fraction of the cost. Yet, if instead of 100 employees, the payroll included a thousand or more, the punched card system might well pay dividends.

With basic factors of procedure and full knowledge of equipment or supplies which can contribute to operation set forth fully, final determination of what to do consists of rationalizing all facts into a comprehensive plan. Such a plan allows each operation to be performed in the simplest manner possible by the most logical organization available for the work.

The study of office machines is absorbing, in fact, a whole book could be written on this subject alone. Each type of machine involves a new set of details; for instance, as contrasted to accounting machines (see Figure 91), the comparative study of typewriters can be made under such headings as:

1. Physical characteristics—weight, size, finish, materials, bearings, adjustments necessary to mechanism, keyboard arrangements available, carriage (and associated paper widths) available, accessories provided, special and standard.
2. Operating characteristics—energy input required for each operation, ease of insertion of paper, noise, quality of output, etc.

TYPICAL MACHINE STUDY OUTLINE (For Standardization of an Accounting Machine)			
FACTORS	MACHINE A	MACHINE B	ETC.
1. OPERATING CHARACTERISTICS			
1.1 Carriage			
1.11 Feed (front or back)			
1.12 Opening (manual or automatic)			
1.13 Closing (manual or automatic)			
1.14 Return (manual or automatic)			
1.15 Column Selection (manual or automatic)			
1.2 Program Control			
1.21 Number of registers on machine			
1.22 Number used			
1.23 Number of balances affected per posting			
1.24 Register and Position Selection (man. or aut.)			
1.25 New Balance Clearings (Dr. and Cr.)			
1.3 Keyboard			
1.31 Type (full or 10-key)			
1.32 Flexible or inflexible (inflexible require separate correction key?)			
1.33 Key Spacing			
1.34 Key Tension			
1.4 Dating Mechanism (keyboard—inflexible—wheel, etc.)			
1.5 Motor Bar			
1.51 Position			
1.52 Tension			
1.6 Coding Mechanism (inflexible—flexible—key-set)			
1.7 Visibility of Data (on ledger sheet or card in machine)			
1.71 Of previous data (for picking up balances)			
1.72 Of current posting line			
1.8 Time and Energy Input			
Note: Base on time studies of typical postings plus evaluation of key and motor bar tensions.			
1.9 Operator Training			
Note: Easy or difficult—number of inter-related keys, levers, etc. to effect various postings			
2. PROBABLE LABOR GRADE OF OPERATOR			
3. GENERAL DESIGN FEATURES			
3.1 Comfort for operator			
3.2 Control features easily accessible			
3.3 Mishandling of controls cause lock-up			
3.4 Lock-ups easily cleared by operator			
3.5 Trim, neat appearance			
3.6 Easily kept clean			
3.7 Ribbon change			
4. MAINTENANCE COSTS			
4.1 Standard Annual Contract Maintenance			
4.2 Special Conditions			
4.3 Service Facilities of Supplier			
5. INITIAL COSTS			
5.1 Base			
5.2 Modifications, etc.			

Figure 91. Typical Machine Study Outline

3. Service facilities provided—cost of maintenance.
4. Distribution facilities provided by supplier.
5. Cost of machine per unit of production.

In addition, standard practices as to type faces, tabulating devices, types of platen, and keyboard arrangement can be set up, producing savings and improved practices. Associated studies of ribbons, paper, carbon paper, erasers, cleaning devices and materials, and maintenance will produce very gratifying results. Each of these studies requires its own particular approach. Knowledge of processes, of operation, and technical detail of equipment acts as the basis for this approach.

SUPPLIERS' DATA.—Frequently authorities in the standardization field are asked, "Why not use the suppliers' data in determining supply standard? Why study these details? Are these elements sufficiently important to warrant spending the time and money to study them?" Positive answers to these questions are not easily given, but it can be said that while most suppliers present honest information, rarely do two of them follow the same method of deriving data to make details comparable. Thus it seems to be necessary for each user to make his own determinations.

It would not be advocated that all standards units make such complete studies, but many could do so with profit and, furthermore, it is evident that if enough of them do make the studies, resulting improvement in products will be of general public profit. Also, demand for comparable data will eventually cause suppliers to establish comparable measuring media.

GENERAL STUDY.—Ordinarily the standards division has more than enough work on hand to keep it busy. If it is doing good work, demands on it for new and improved procedures and items frequently exceed ability to produce. Yet it must be recognized that one of its prime functions is to prevent obsolescence both of procedures and materials. Thus, it must look for trouble. Periodically each operating unit of the business must be visited and the procedures, equipment, and supplies used reviewed. Approached in the proper way, this does not become an unwelcome checkup, but a mutual get-together similar to insurance inspections which are so useful in any well-run business. In this way outmoded standards can be brought to light and made the subject for study and action required.

Similarly, the standards division must constantly study commercial practices, equipment, and materials in order to apply those useful as quickly as practical. The standards man must know what is going on, both in the business he represents and in the commercial field. He must recognize the new and useful, and apply it. He must discard the obsolete without regret—it has served his purpose.

Approach to a Standards Program.—Rarely is it necessary to build a new standards program parallel to organizing a new industrial or commercial firm. This recommended approach, therefore, will be treated from the standpoint of instituting a program in an established business.

In office management there are two main fields of standardization—procedures and material. In both of these the general approach can follow a two-stage program.

QUICK COVERAGE OF EASILY DETERMINED STANDARDS.—Each established business has certain procedures and equipment with, and under, which it is doing business. Therefore, the standards division can readily review the outstanding and most essential of these and quickly agree upon recording them as standards. Remembering that standards are not static, future studies can improve these existing standards as required. Such quick coverage probably will bring agreement on as much as 75% of the total field, and it can be accomplished in just about the length of time required to publish results. In an average concern this might require six to eight months, depending upon the organization of personnel and work to be done.

MORE DIFFICULT PROBLEMS.—During the quick review certain items will be set aside for more detailed studies. The standards division approaches these, making basic studies and, upon reaching agreements, each standard is published and becomes part of the record.

The time required to complete this phase of the program depends on the amount of work required and personnel available, but under reasonably average conditions, the work should be completed in a year to a year and a half following coverage of the more easily completed work. Indeed, some authorities hold that the work and personnel should be planned so that the time intervals will fall within the limits cited.

Standard Procedures.—The establishment of standard procedures assures the objectives of cost reduction to the greatest degree possible. It is management's most useful tool. Any properly operated planning department or methods staff should be regarded as an integral part of a standardization force.

The development of the most suitable procedures for the purpose is a direct reflection of the company's policies. Subjects for standard procedures illustrate this fact conclusively:

Employment. Methods of making applications, interviewing, medical examination, rate determination, classification by occupation, entry on payroll.

Personnel Recording and Analysis. Recording of personal data—codification of occupations—progress of supplemental training and education—progress in occupation—progress in rate—employees census data—available

data for special employee requirements—methods of keeping records up to date.

In these two classes of procedure alone lies a tremendous field for exercising every channel of the objectives of standardization. Each employee properly placed on the right job, working at his best efficiency under the happiest, safest, and healthiest conditions, becomes the greatest potential force for economical operation.

Billing, Vouchering, and Accounting. Standard statistics of operation permit comparisons which, without standardization, would require much weighting or rationalization, with many errors of human judgment. The normal progress of any business is dependent on the thorough understanding of each element that goes to make up its composite operation. A simple, yet complete, report system is a must for every business.

Correspondence, Mailing, and Communications Practices. All of these relatively simple routines can be standardized to contribute much to economy, improved relations (promptness, courtesy, and service) with customers and all other contacts. Standardized correspondence does not mean that form letters, paragraphs, or any part thereof are to be used in lieu of friendly, natural, expression in good English. Standardization must include subject reference, terminologies, format, time schedules for handling, and criteria of expression for clarity and courtesy. These, too often left to individual interpretation, can be the greatest obstacles in the path of good human relations. They must be clearly defined.

Miscellaneous Procedures. Which of these to standardize will depend upon the character of business and operations involved. Natural subjects for consideration include receiving, shipping, stock recording, sales, engineering, etc.

The good standardization engineer considers the field of equipment maintenance, such as cleaning and refinishing furniture, oiling casters, replacement of worn footings, cleaning and finishing floors and floor coverings, cleaning and lubricating office machines. He examines processes such as duplicating to see that standard applications and operation can be effected by regular forces. He designs adequate plans so that office layouts peculiar to the business and its environment can be prepared and understood by all involved. He sets up criteria for the environment itself—lighting, heating, ventilating (air conditioning), sound insulation, private offices, employee facilities (washrooms, lockers, recreation, and lunch rooms) and the thousand and one other details which cement good employee-management relations.

It will be seen from these illustrations that the establishment of adequate standard procedures does practically constitute the establishment of good management. By the adequacy of its program of such standardization, the success of an organization can be measured. Incidentally, this phase of

standardization is somewhat more stable than that involving materials. It expresses more of the character and policy of the business. Once established, the individual details are less subject to commercial changes which affect materials. Always subject to improvement, however, even these must not be considered permanent or even more than the landing on which to rest prior to climbing the next step.

Standard Equipment and Materials.—In this field consideration must be given to furniture and fixtures, office appliances, supplies, and miscellaneous items.

FURNITURE.—Studies should include partitions (including railings), floor coverings, desks, tables, chairs, filing cabinets, safes, vaults, bookcases, wardrobes, equipment for mailing, record storage, stationery and supplies storage and rest room, assembly room, and lunchroom equipment. Depending on the nature of the business there might be studies of showrooms, sound picture equipment, or many other specialties might be desirable. This field requires much study both in setting up and maintaining standards, though changes in company procedure and requirements affect items less than do changes in commercial materials.

APPLIANCES.—The studies of office appliances will include many common items such as typewriters, calculating, dictating, and duplicating machines. Depending on the nature of the business studies of change-makers ("automatic cashiers"), coin sorters and wrappers, mail openers and postage metering machines, numbering devices, addressing machines and equipment, punched card and tabulating systems, and many commercially or specially designed devices to fit the peculiar requirements involved may be necessary. Some parts of this field are relatively stable, but constant study of machines and processes is required to insure modern and up-to-date operation.

SUPPLIES.—Studies of office supplies can cover a tremendous field. There are so many items that detailed listing is not practical, but the broad definition used by one large corporation is practical:

"Office supplies include those materials consumed in the ordinary operations of the clerical forces."

Using this definition, it is apparent that forms and writing materials (pens, pencils, ink, typewriter ribbons, paper, pads) fasteners (clips, staples, etc.), and hundreds of other items are automatically included.

MISCELLANEOUS.—Special mention should be made of janitor supplies. In this class will come cleaning materials, hand soaps, and towel services (with other washroom facilities), floor treatments, and such. Even when

janitor service is furnished by a landlord, the specification of these materials as a part of the lease will usually be desirable to promote safety, health, and good employee relations. For instance, specifications of floor treatments assuring cleanliness and non-slippery surfaces obviously can promote both health and safety. Particularly important, under supplies, are the studies of forms and paper stocks. In all ordinary business, standardization of these will assure control and savings of as much as 50% of the pre-study costs. One or two items such as envelopes, tags, or labels will frequently provide savings sufficient to defray the cost of studying the entire field.

Catalogs and Handbooks.—The results of all standardization work must be recorded in sufficient detail to serve as a guide for action and reference for future study. In large organizations, and those with complex operations, such data can be published in handbooks covering procedures and catalogs of equipment. Even in smaller, or simpler, offices essentially the same record must be kept, though the formality of publication and reproduction may be greatly reduced. Standards are a guide to the proper action required to carry out the company policies. As such they must be made effective. Checking, inspection, and review are required to keep them and the business up to date. Equally important is that operating forces respect and use the standards in their everyday work. Thus, publication in suitable form is a most important step toward that objective.

Normally all procedures should be numbered for convenience of reference, cross reference, filing, and finding. Many concerns have found a decimal system of considerable help. Such a plan might follow a (briefed) outline as follows:

<i>No.</i>	<i>Description or Title of Procedure or Routine</i>
1	General company policies
2	Duties and responsibilities—organization charts
3	Financial
4	Accounting
5	Personnel
	etc.

The basic numbers would then be amplified with decimals, as for instance, the duties and responsibilities of the president could be numbered 2.1; those of the executive vice-president 2.2, etc. Thus, under each main reference would be arranged the details as set up.

The catalog of equipment and supplies is most useful when item numbers are assigned. The plan adopted should permit assignment of numbers to each item. For instance, rubber bands should not be given one number, but a number for each size and description. This will allow the number to be used for identification on specifications in ordering, in stock, and in disbursement. Prefix letters are useful such as, "GS-(No.)" to indicate

"general standard," "LS-(No.)" for "local standard" or "NS-(No.)" for non-standard items recommended for specific applications.

Since distribution of handbooks and catalogs must be governed by the size, operating conditions, and locations of the concern, it is difficult to set forth many rules covering all requirements for distribution. It is necessary to see that each organization has sufficient information at hand to cover all normal operations it must perform and to bear in mind that the least frequently performed operations require information for guidance even more than the common work. It is also important to see that any organization is not burdened with information not pertinent to its work. This may require preparation of procedures for individual operating organizations, but such arrangement streamlines the handbook for each operating unit.

Unnecessary information in the hands of an operating unit creates bulk in the handbook, causes superfluous questions, and even breaks down respect for the procedure system. All such publications should be attractive physically and in typography. They must be thoroughly readable as to text, composition, and reproduction. It should be the duty of the standards division to prepare specifications for these publications to establish and maintain that quality which will permit easy reference and reading.

These handbooks and catalogs are important tools of management. It will pay dividends to see that they are the best tools for the purpose. Part of the utility of each handbook and catalog is its binder. The standards division should study this matter carefully. The binder selected should be good-looking—even distinctive. It should have long life and, above all, should require minimum filing effort. The size should be convenient to working conditions. For field operation, a pocket size may be desirable. For office use the normal letter size (8 $\frac{3}{8}$ in. by 10 $\frac{7}{8}$ in.) is most useful.

Specifications—Relation to Purchasing.—Standardization of equipment and supplies must be correlated to purchasing with care. The ideal standards division lays the foundation for good buying, but holds itself aloof from actual purchasing. It prepares the specifications necessary to buy economically, but never does the actual buying.

Standards should permit legitimate competition. By this means the purchasing agent can buy at prices permitting reasonable profit to the supplier, but also at the lowest price consistent with required quality. Specifications must define clearly the grade of material required. They should include data by which inspection, with acceptance or rejection, can be made. In so far as practical, trade-marked brands, or items limited in supply by patent situations should be avoided. Specification by detail may result in buying trade-marked material, but if broad enough, will permit competition between several brands. The standards division must work closely with the purchasing agent in wording specifications to make this possible.

Detailed specifications are not always necessary. Frequently, on commonly used material such as clips, pens, etc., the phrase "per approved sample" is sufficient. In some cases, also, it is convenient to cite a definite trade name such as "Ivory soap" and then qualify as, "Ivory soap or approved equivalent." In this way examination and test of samples submitted is comparative to a known and established quality. In other cases, specifications must carry considerable detail. For instance, paper specifications should include composition, color, weight, thickness, bursting and tearing strength, and, in grades for wrapping, other details such as moisture-proofing should be given.

Maintenance of Standards.—Standardization is a constant and permanent function. Review and restudy of existing standards are constantly necessary. There are two ways in which such study is stimulated—questions from operating organizations and organized review. Both are necessary.

QUESTIONS FROM OPERATING ORGANIZATIONS.—An efficient standards division becomes the target for a bombardment of questions. Sometimes these are unnecessary requests. Thomas Edison once said that he was ever amazed at the amount of effort most people would make to avoid thinking. Where data are a matter of record, the standards division must avoid—but avoid very diplomatically—being a routine information service but, at the same time, it must encourage thoughtful questions and comment. Questions by operating organizations are most useful in keeping standards up to date. It is even worth while to develop "key" employees throughout the organization to observe and ask questions about operations and equipment. Incidentally, these people become suitable candidates for work in the standards division.

ORGANIZED REVIEW.—This can be divided into two phases—regular periodic review of handbooks and catalogs and actual inspection (audits) of operations.

Review of handbooks and catalogs should be almost constant. The supervisor, in particular, should habitually review procedures and equipment, paralleling his study with sufficient personal investigation of commercial practices and equipment development to assure use of the best for the purpose.

Physical inspections are necessary but must be made with tact and in a truly helpful spirit. No standards organization should have or use arbitrary police power. It should not enter into an inspection with an attitude of finding what is going wrong. The attack should be one of self-criticism—where are procedures inadequate or obsolete, and what equipment has been allowed to become obsolete? The detailed inspection should include:

1. Examination of the performance of the unit as a whole.
2. Examination of the procedures peculiar to that unit. (Examination of common or general procedures can best be undertaken by following that procedure throughout the entire organization.) Each weakness or strength of a procedure should be studied.
3. Examination of equipment as related to its general conformity to the objectives of standardization.
4. A detailed report giving first, the outstanding good points observed and, second, the points on which further study might result in better practices or materials. This should be prepared and reviewed with the supervisor in the unit inspected "off the record." Many minor items may be corrected without official action. The studies finally agreed to be necessary will not be regarded as criticisms. Further work will be assisted through the right approach.

The correct approach is one of the most difficult operations of a standards division. To criticize without "criticism"—to inspect with a critical eye, but in a helpful spirit—these are tests of diplomacy and tact. Together with the need for broad knowledge and experience, such inspectors must have the personal qualities which assure study in the right spirit—complete study, but study which does not antagonize.

To summarize, standards must be maintained—kept up to date—by constant study of company operations, by study of commercial operations and developments, by comparison of these company and commercial conditions, by constant review, and by actual inspections.

Costs and Conclusions.—From the preceding text one might judge standardization in the office to be an expensive procedure. In general, the cost must be controlled or the expense can exceed the savings. On the other hand, lack of control of the functions served by standardization can be even more expensive. Hence, the amount devoted to this work must be balanced against the requirements as dictated by the size or complexity of the organization.

The results of standardization work carried on in many organizations indicate savings in the order of 10% to 50% on projects undertaken. Thus a yardstick can be established by which the amount of such effort practically can be estimated roughly. If, for instance, an operation requires \$50,000 in unloaded clerical effort and 10% of that effort might be saved by standardization, \$5,000 could be devoted to such effort with good prospects of net profits. Since these savings accrue for the life of the plans set up, or as long as basic conditions remain unchanged, the initial cost of doing the work usually is but a fraction of the total savings involved. If, further, equipment and supply costs for this \$50,000 clerical force cost approximately another \$5,000 (and the larger ratio of savings can usually be found

on materials) standardization can easily bring about savings which make the effort worth while.

In one large concern operating about 1,000 calculating machines, study of this item alone resulted in annual savings of \$40,000. The cost of the study was about \$7,500. In the same concern (already considerably standardized) study of paper stocks resulted in savings of \$30,000, at a cost of \$2,500. Similarly, studies of envelopes yielded \$30,000, and of mechanical pencils, \$15,000 annually. In such savings many intangibles were mentioned only as added advantages.

Controlled study prevents duplicated effort. In any large organization it is easy to conceive that without delegation of studies to a specific organization, each operating unit can engage in many studies paralleling work of others. Not only is this a waste of effort, but frequently conflicting results and conclusions cause loss of flexibility in equipment and personnel as well as increased clerical work and cost. Thus, controlled study—standardization being the result—is a tool of good management. Effort in proportion to the size and complexity of operation produces dividends, improves working conditions, and thus promotes good relations between labor and management. Just as a good shop tool produces a good product, a keen up-to-date standards division produces products that sell to the whole organization, labor and management alike.

CHAPTER 15

FURNITURE AND EQUIPMENT

Furniture, Its Selection, Use, and Maintenance

Selecting Furniture as Working Tools.—Chairs, tables, and desks, plus the addition of filing cabinets, can be considered basic office furniture for the purpose of this discussion. But the broad picture would also include such items as file baskets, desk lamps, bookcases, storage cabinets, wardrobes, and pictures. The same principles applying to basic furniture should apply to the broad range. Above all, furniture is a working tool and shares with all tools the need to be right for the job to be done.

The selector of desks, chairs, and filing cabinets as office tools should recognize the same elements as the mechanic when he picks out his various working tools.

1. Furniture, as an office tool, should be geared to the needs of the office job to be done. Sometimes a table is a wiser selection than a desk. A five-drawer filing cabinet may be superior to a four, even though recent studies indicate four-drawer cabinets are generally preferred. When a desk is geared to job requirements, it adds silently but materially to the productivity of the user.

2. Furniture should be efficient in operation. Efficiency may be defined in terms of (a) ease of mechanical operation, (b) the most appropriate drawer arrangement and location (tables and desks), (c) proper height, (d) suitable dimensions, and (e) appropriate surfaces. The presence of these factors in a positive way assures maximum economy of use and operation.

3. Furniture should be comfortable within the limits of its functional purpose. For some jobs an upholstered chair may be desirable, while for others a correct posture chair may be more comfortable for the user. Desks, too, should have their comfort quotient.

4. Furniture should be versatile within bounds. Whether it is a desk or a filing cabinet, the working tool should have adjustable features permitting it to be used for more than one type of work. Exceptions, of course, are highly-specialized items such as equipment tables, sorting racks, or tub files. If it is not practical to design a desk to fit the physical peculiarities of an individual user, it is still desirable to use equipment generally suitable to

differing groups of individuals, and having a flexible use range holding furniture inventories to a minimum.

5. Furniture should be pleasant to look at. Attractiveness of appearance need not be expensive. A matter of careful judgment in selection, coupled with an effort for a harmonious office pattern, will go a long way in obtaining eye value. Line, color, texture, and dimensions are appearance factors that should play a part in judicious selection.

6. Furniture should be qualitatively good. Goodness should be defined in terms of durability, usability, and a very definite consideration of aesthetic values. Quality has a corollary in economy. Cost, in itself, is a poor index of the appropriateness or the quality of furniture. Quality should be conditioned by the other five major factors listed above; suitable to operation, efficient, comfortable, versatile, and of good appearance.

Planned Tool Efficiency.—Selection of furniture should be the result of planning, not the forerunner. Furniture should be planned to fit its environment, the space in which it will reside. If there is a luxury of space, then there can well be a degree of expansiveness to office fittings. If there is a paucity of space, a judicious slicing off of six inches here or a foot there in the preliminary planning stage may be accomplished without too great a loss in the functional ability of the furniture.

Efficiency in furniture is a complex factor that involves simplicity, cleanness of line, rightness of design, and durability in construction. Yet efficiency can be translated into functional rightness without denying the comfort factor.

The office as a place of work has an important effect on the productive capacity of its workers; good or bad, according to the quality of its over-all facilities. If the factory production line must be meticulously planned for peak results, then the office production line must be as carefully worked out. A pen may substitute for a crane or a filing cabinet for a press—yet the same rules for productivity and the elements promising its best possible realization are the same for factory floor or office enclosure.

A desk, a chair, and a filing cabinet are useful working tools. They can play a vital part in implementing good office operations. The office is home for the workers' productive hours. It deserves the good working tools that only wise selection can bring.

Desks and Tables—General.—Desks and tables are used for arm supports in writing, for holding papers, for holding equipment, and for storage. The work surface is most important in point of dimensions, height from floor and in some instances, shape. Drawers have a sort of transient storage value. The over-all dimensions are important in ratio to the importance of the space available.

The type of work to be performed should be a guiding factor in determining whether or not a desk or a table should be used, and what features either should possess to insure maximum usability. Often, a table is superior to a desk, though a common error is to install a desk as an automatic solution to the working tool problem. A table, aside from the lower initial cost, can be more versatile, psychologically more conducive to efficiency and neatness, and even more attractive than a desk.

Whether it is desk or table, certain factors should be taken into consideration to assure the maximum in furniture value. First, a desk or a table should be handsome in its own right. Handsomeness is a blend of good design and color. Good design is functional in point of arrangement, dimensions, and use flexibility. Color involves materials and finish.

Design and Desks.—Parts of design include such desirable factors as rounded edges, smooth finish, simple but attractive drawer pulls, proper height, and good proportions. An office can be much improved in its physical aspects if an effort is made to standardize on one type of furniture. Standardization, however, should not result in the spread and perpetuation of outmoded or poorly chosen furniture merely to be consistent. When a study is made of office furniture the objectionable pieces should first be tabbed for replacement. If these replacements do not belong to the same family as the rest of the pieces, but satisfy the basic requirements as described in the paragraphs above on "Selecting Furniture As Work Tools," it is better that the weeding process continue at the cost of temporary non-standardization.

The top or working surface of the desk should receive special attention. The worker should be protected against glare, with the advantages of glass tops being outweighed by the very real possibility of eyestrain inherent in their use. Color such as soft green is desirable. Dark tops provide too much contrast with working papers. Natural wood finishes are usually good, possessing sufficient softness in shading to eliminate distraction. Desks and tables need not be drab to preserve the element of conservative dignity usually sought in the modern office.

Where metal furniture is desired, a good finish is particularly important. Steel desks are replacing wooden desks in many offices and the prejudice toward them as to their coldness and unattractiveness has largely been dissipated. Metal desks, as with metal chairs, tables, and filing cabinets, have lower maintenance costs than wood, do not mar easily, and require less frequent refinishing. Their life expectancy is relatively longer. Such features as suspended drawers, which are easier to open, give them distinct advantages over wood.

On the side of wood furniture, there is much to be said for the beauty of the grain, for a possibly friendlier appearance, and certainly a more

natural effect in the office furnishing scheme. Wood has a reasonable durability and sensible treatment and care will extend life expectancy much closer to that of metal types.

TRENDS IN DESKS.—The trend in desk height is downward, as low as 28½ in. and 28 in. compared with the old standard height of 30½ in. The lower height reduces fatigue by being more convenient and more comfortable. A somewhat newer school of thought favors the simple expedient of making desk and table heights adjustable and therefore easily adapted to each user. As height is reduced, there is also a tendency toward reduction of desk sizes. This reduction is based more directly on the nature of the work to be done at the desk or table. Desk tops of 30 in. x 50 in. size are sufficiently large for most jobs. However, job requirements should be carefully studied and analyzed before a decision is reached as to the best dimensions.

One of the current ideas for increasing the flexibility or versatility of desks is that of providing interchangeable parts. A desk may thus be converted from a pedestal to an executive type by merely changing a few parts, particularly the top, using the same "chassis" for both. This practice increases the use possibilities of the desk, reduces necessity for moving the desk about, and decreases the usual inventory required of the conventional types. By making possible an easy adjustment to new job problems, the desk becomes a more valuable office working tool. The construction of desks so as to extend the top 8 in. or 10 in. over the sides is another idea gaining favor since the feature contributes to the desk's over-all usefulness.

Desk and table shapes have emerged from the simple rectangular state and range from the elliptical, the indented "tub" type, to the octagonal conference table (so shaped as to permit all seated to look directly at each other without neck swivelling). The trend is toward freeing the shapes from tradition and increasing usefulness with a corollary in comfort.

Types of wood used still include oak, walnut, and mahogany as top favorites although maple, cherry, and redwood have their devotees. Occasionally, variations like blonde maple enjoy popularity. Metal furniture continues to be supplied in green and brown hues, although in some quarters an effort is being made to soften the shades and to bring the finishes more in color harmony with the office as a whole.

Desks usually possess too much storage space. This invites an excess of desk filing, a tendency to hoard supplies, even the dumping of documents into a drawer to be neglected or forgotten. The substitution of a table for a desk in order to limit storage space may not always be feasible. However, the holding of desk storage to minimum is not only feasible but is actually a requirement for office efficiency.

The Office Chair.—Chairs have come in for increasing study. The so-called posture chair has demonstrated its worth in giving body support and comfort to the office worker. Posture chairs have been designed for certain operations as posting and typing. They have made their contribution in increasing job output and reducing fatigue. Posture chairs made of steel and aluminum have gained considerable popularity over wooden chairs for operations such as typing, tabulating, posting, and the like. These chairs are easily adjusted, wear well and have an appreciable effect on the health and morale of the user.

The selection of casters has a seemingly disproportionate importance until the fatigue factor present in faulty operating chairs is considered. Proper casters eliminate noise and minimize maintenance costs. Inferior casters may seriously damage floors. Chair mats or floor pads are particularly useful on carpeting since they protect the carpet and increase the mobility of the chair.

Leather has become the standard upholstery for posture chairs because it is sanitary, easy to clean, and long wearing. The use of foam rubber padding is growing, as it is generally considered superior in comfort, wear, and resiliency to hair or felt padding.

The File.—Steel files are accepted as standard in many quarters. They possess definite qualities in point of appearance, utility and safety. It is good practice to equip the office with the same type of files, with uniformity as to depth, width, and height. This permits interchangeability and resultant efficiency in use and space occupancy.

Much may be said in favor of the wood file. As in the case of wood desks and chairs, wood does make a certain contribution to the environmental atmosphere of the office. Furthermore, in case of fire, there have been situations in which the wood file was charred but the enclosed records were undamaged. In like circumstances, the heat penetrated the steel file to the extent of destroying the enclosed records. Wood files lend themselves somewhat more naturally to being "built in" counters and wall spaces.

Selection of files should be carefully planned in line with the peculiar needs of the office. In many instances, the five-drawer file possesses definite advantages in space saving and efficiency of operation. On the other hand, either filing stools are necessary or girls above average height must be employed as filing clerks.

Paper sizes have a controlling effect on file sizes. Further progress in standardization of filing equipment is necessarily linked with paper standardization. A step in this direction is the careful designing of forms to conform with file sizes.

Grade A filing equipment is the best investment. Its durability and ease of operation offset the relatively high initial cost. Grade C and Grade E

files may be more practical for the storeroom but their selection, as with all working tools, should be made with care and a complete knowledge of the requirements for their use. Color also plays a role with filing equipment. Good practice is to standardize on one color so that files may be shifted from one department to another without jumbling the color scheme generally in effect. Choice of color, too, should take into consideration avoidance of possible light refraction.

Maintenance.—Adequate maintenance of office furniture is an important investment. Adequate maintenance results in the preservation of assets. Employees should be instructed to report immediately any minor repair required. Periodic inspection should be routine. It is particularly important that the tools be kept clean and the surface protected. The proper attitude on the part of management toward its equipment and furniture will be reflected in the attitude of the worker.

For the small office the equipment dealer will be willing to inspect his equipment or furniture to assure that it is kept in perfect condition. Maintenance contracts with local dealers will keep present furniture and equipment in good shape. If the office is large, the maintenance of equipment and furniture should be centralized in one department. A maintenance man may be kept busy full time on this type of work.

The casters on the chairs, for instance, should be oiled periodically and checked at least once a year to see that they are operating properly. Worn parts should be replaced whenever necessary. File drawers should be checked regularly and oiled to keep them in proper working condition. The same attention should be given to the storage cabinets also.

Posture Seating

Definition Based on Body Mechanics.—Good sitting posture is that position in which the various parts of the body function most efficiently. The position of the upper part of the body that is most efficient in walking is most efficient in sitting, the sitting body being considered as one which has had its support transferred from the legs to some other medium, such as a stool or chair. With the legs in a horizontal position, A and B (Figure 92), the ischia, C and D, are the lowest points of the trunk and on contact with the chair, support the entire weight of the trunk when the individual is sitting erect.

The most efficient position may be studied in the light of laws of simple mechanics. Figure 93 shows the bony structure of the trunk in a natural position in an undistorted body. This illustration, and Figure 94, reveal that the spine is actually a column and forms the main support of the trunk, distributing the weight as does any other column to its footing, which in the sitting body is the ischia, as in Figure 92. The spine is composed of various

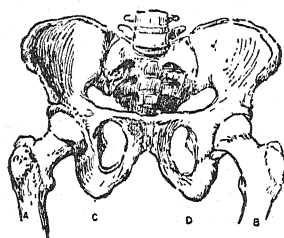


Figure 92. Showing the Distribution of the Weight to the Ischia, C and D, of a body in upright sitting position



Figure 93. Trunk from Side—natural position of bones and natural form of muscles as in undistorted body

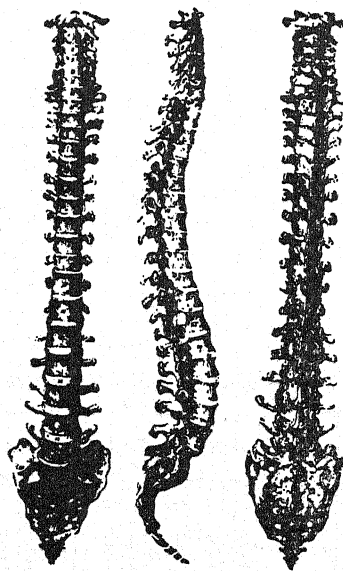


Figure 94. The Spinal Column

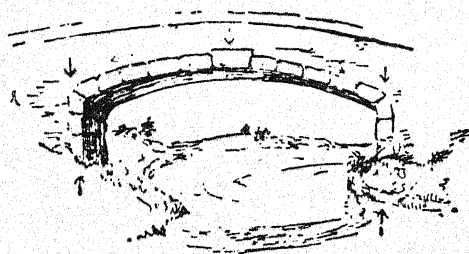
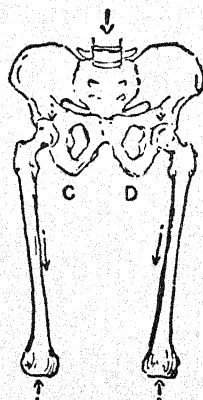


Figure 95. The Pelvis



segments called vertebrae, forming a sectional column which supports the weight of the head and body. As a column is most efficient when bearing vertical strain, the spinal column functions most efficiently when approaching a vertical position.

The pelvis (Figure 95) forms an arch with the end of the spine acting as a keystone. This arch, like any other, is most efficient when supporting vertical loadings. It is not designed to withstand horizontal strain. The pelvic arch rests upon vertical support of C and D. Consequently, if the

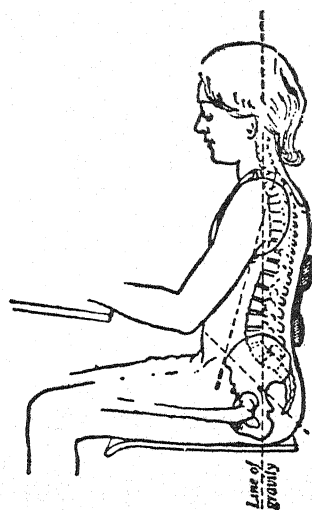


Figure 96. Good Sitting Posture

pelvic arch is tipped so that strain applied at the keystone is not in a vertical plane with the support of C and D, it will not function efficiently. The position of the head, arms, and legs should be such that they do not tend to force the spine and pelvis out of position, thereby reducing their mechanical efficiency. Because of these readily discernible mechanical fundamentals, authorities agree the position shown in Figure 96 may be considered good sitting posture. From this accepted position, it is possible to summarize the elements of good posture as follows:

1. The back, pelvis, and shoulders should align vertically so that a plane passed through them would touch the points indicated (Figure 96). This permits carrying a maximum body load in the vertical plane.
2. The head should be held erect. In this position, its center of gravity is directly above the spinal column, where its weight can be carried as vertical loading.

3. The bones of the lower legs should be vertical with the feet placed squarely upon the floor. Thus they act as columns supporting their own weight and conveying a vertical loading to the arches of the feet, which likewise function most efficiently when bearing vertical strains.
4. The bones of the upper legs should be horizontal. In this way they act as beams conveying the weight of the thighs as vertical strain to the pelvis and lower legs, and thus do not tend to force the pelvis out of the vertical plane.
5. The arms and shoulders should be in a position that does not tend to force the spine out of proper alignment.

Essentials of Good Seating.—To provide “good seating,” posture chairs must accomplish the following:

1. General
 - (a) Permit the body to relax while in a position of good posture.
 - (b) Not overlook the “human factors” in their design. Good seating should permit occasional relaxation and deviation from good sitting posture (no human body can remain in a fixed position for a prolonged period of time), yet maintain good posture during the maximum possible time each day.
 - (c) Provide “comfortable” good sitting posture.
2. Base
 - (a) Afford stability in any position in which the seat can be tilted or worker can lean.
 - (b) Should not be cumbersome or interfere with foot space required by the worker.
 - (c) Withstand scuffing and normal abuse without splintering or requiring frequent refinishing and repair.
 - (d) Should be equipped with suitable casters or glides to permit and control chair movement under various floor conditions.
3. Seat
 - (a) Should be comfortable.
 - (b) Sufficiently short from front to back so as not to press upon nerves or blood vessels on the under side of the leg near the knee.
 - (c) Wide enough to accommodate large workers.
 - (d) Slope slightly toward the rear to induce gravitation toward the backrest.
 - (e) Conform to the natural curvature of the buttocks and upper thighs. This increases the body area in contact with the chair, thereby distributing the load from the spinal column to a wider footing, reducing the pressure per unit area.

- (f) Edges rounded to avoid pressure at any given point. Rear of seat should be designed to avoid contact with end of coccyx, when the worker sits well back into chair against backrest.
- (g) Cool in summer and not cause undue wear of clothing.
- (h) Should be protected and protect other equipment from damage or wear due to contact during normal use.

4. Backrest

- (a) Supply relaxation when required and support at lumbar region, commonly called "small of back." This area (above the hips and below the shoulder blades) is the section which tires most readily, requiring outside support to assist in maintaining body in erect position.
- (b) Large enough to give adequate support to prevent undue pressure at these points.
- (c) Should not interfere with the free movement of arms, shoulders, or of the occupant sitting well back into the chair.
- (d) Conform to both the horizontal and vertical curvatures of the worker's back.
- (e) Constructed for comfort; permit conduction of heat away from body and prevent undue wear of clothing.

5. Adjustment

- (a) Seat should accommodate varying contours of different workers. Upholstered or saddle (shaped) seats may be used to accomplish this objective.
- (b) Height of seat must be in relation to the height of the working plane and in proportion to the size of the worker. The body should be supported at a height which prevents the arm, when at rest upon the working plane, from pressing against or hanging unevenly from the shoulder.
Where working plane must remain fixed and the chair height determined accordingly, worker's feet should rest squarely on the floor or other support, so that upper legs remain horizontal. Where height of the working plane may be varied, height of chair above floor is determined first and the working plane adjusted in relation to it.
- (c) Backrest should be adjustable as to height and variable forward and backward.
- (d) The backrest should be adjustable for varying shapes of workers. This may be accomplished by the use of upholstery; by proper sloping; and by mechanical adjustment.

Office Machines—Types and Uses

Machines, while definitely influenced by the two other important factors in office operation—men and methods—probably do not have as many variable elements to satisfy within a given type of operation as the other two factors. In general, a machine performs one or a related group of tasks so that they can be classified quite easily by the type of work they perform. Certain machines cannot be correctly classified under any one of the fundamental functions as they perform a combination of these functions on a large volume of special work that can be handled in a routine mechanical manner in a given sequence on a special machine. On the other hand, some devices which are used in performing office operations of major importance are not necessarily as complex as the name machine might imply. They are above the class of the usual office gadget and so warrant mention.

A classification of office machines with comments regarding their uses and methods of operation should be useful for reference when reviewing present operation or setting up new ones. This classification is designed to bring together as a unit group machines which perform similar functions. Although trade names have not been used, reference to "Office Machines Directory"¹ will provide a bridge between this classification and the trade names used by the equipment suppliers.

Writing and Reproducing Machines.—The machines and devices that make up this group comprise the largest number of machines in use and handle the largest volume of the office work. Accessories and special adaptations for doing specialized detail operations numbering in the thousands are available.

TYPEWRITERS.—A highly standardized product originally created to produce a large volume of uniformly legible text at high output but with sufficient flexibility to permit a reasonable number of variations encountered in general office work. Generally a full manual operation but available in power-driven models to increase production and reduce operator fatigue.

Correspondence Machines are the "garden variety" of typewriter that is limited in one machine to a specific type face, letter spacing, and limited line spacing without resorting to special settings by the operator. A recent variation of this machine takes into account the varying width of the letters of the alphabet and so produces text that more nearly approaches the appearance of typeset material. The greatest use of correspondence machines is the production of correspondence and filling in of forms for general business use.

¹*NOMA Bulletin*, No. 3, prepared by the National Research Committee of the National Office Management Association.

Special Purpose Typewriters are for the most part variations from the "garden variety" machine to which have been added accessories or adaptations to meet a special requirement. They can, in general, be divided into two groups:

1. Fixed type face and spacing, in general, form the simplest group of special typewriters in that relatively simple type face, keyboard, or spacing changes form the specialty. Their use is limited mostly to the specific operation for which they were built. They are frequently used in the preparation of invoices, checks, bills of material, and for filling in special forms where a type face or spacing different from that normally found in the correspondence typewriter seems desirable. Machines equipped with special ribbon attachments to prepare offset plates or masters, hektograph masters, and duplicator stencils might be considered in this classification especially if the type face or spacing differs from the usual pica or elite faces. Special application for coding, cryptographic, musical, or braille work are the more specialized applications.

2. Interchangeable type and variable spacing are used extensively in the preparation of forms, text, and statistical typing where the changes in type size or style and different spacing of letters are desirable to simulate typeset appearance. These machines are used extensively in the preparation of originals, offset plates or masters, hektograph masters, and duplicator stencils. Those who are engaged in the preparation and publication of special forms, manuals, instructions, and releases for publicity or advertising purposes find great use for this type of machine as well as do drafting rooms where machine lettering is replacing hand lettering or notes and dimensions on drawings.

Billing and Bookkeeping Machines are a special adaptation of the typewriters with the addition of special coding types and keys and with or without computing registers. A great many variations of these machines are available and are extensively used for the handling of accounts receivable and payable work, payroll work, invoicing, and statement preparation, as well as internal bookkeeping and accounting work. Two general types are:

1. Cylinder type, using the conventional platen common to typewriter construction.
2. Flat bed type, in which the material being typed on is placed on a flat bed beneath the main portion of the machine. Large ledger sheets can be accommodated with high visibility of the sheet. These machines are frequently used in the preparation of large "Bill of Material" sheets and have been adopted for lettering on large drawings.

Automatic Typewriter is a combination of a typewriter and an actuating mechanism which permits the preparation at high output of a large number

of letters of nearly an exactly identical text in which the address and salutation are manually typed on the sheet and the main body of the letter typed on the same machine actuated by a "player piano roll," controlled power-driven mechanism. Special inserts can be made manually at predetermined points to permit a certain amount of variation in the text without performing the entire typing operation on each letter manually. High output per person is possible on repetitive work which retains a personalized appearance.

MANUSCRIPT MANIFOLDING.—This is a system which is used more often than a machine in the making of multiple copies of sets of sales tickets, work orders, shipping instructions, shipping lists, charge-out tickets, and receipts. Many schemes are in use in which combinations of orders, shipping instructions, shipping lists, and invoices are in the main prepared at one writing with additions by various departments or individuals as work progresses. These can be prepared in longhand or by typewriter and can take the form of—

1. Alignable single forms.
2. Precollated with or without one-time-use carbon sheet inserts or spot carbon. Can be had either as single bound sets or multiple bound sets.
3. Continuous aligned sets, either from roll- or fan-folded stacks of forms to be used on some form of typewriting machine or autographic registers.

DICTATING AND TRANSCRIBING MACHINES.—While these machines do not write or reproduce in the visible and direct reading sense, they are a link in the chain between the conception of a thought and emergence of that thought on a piece of paper directly readable in language commonly used. Thus, they belong in the group of writing and reproducing machines. The most extensive use is in dictated correspondence and reports preparation in order to reduce the elapsed time between dictation and completion of the typing and to increase the individual output of the typist. As in the efficient use of all office machines, both the dictator and typist must be trained in the proper use of the machines and must use them frequently to become most proficient in their use. This equipment is now available in several types of recording media, the most frequently encountered being (a) composition cylinder (b) plastic disc and (c) steel wire. Recording and reproduction can be by either mechanical or electrical means, the latter having been developed to a high degree of fidelity but is not yet as widely used.

Dictating Machines can be classified according to their use as:

1. Correspondence or Report Preparation, the most common general use.
2. Conference recording (electrical recording) for typing or permanent record.

- (a) Telephone conversation recording—rapidly developed during the war for expediting work and from which exact confirmations can be typed or retained as a permanent record.
- (b) Round table discussions.
- (c) General meetings and forums including speeches, floor discussion, and question and answer discussion.
- (d) Methods study—used extensively to record for study such procedures and methods as involve the giving and passing of oral orders or operations in which considerable importance is placed on speech, voice, or vocabulary.

Transcription or Reproduction Machines fall into the following classifications:

1. Stenographic Machines used by the typist to reproduce the voice of the dictator of correspondence or reports or other material from which typed copy is prepared.
2. Conference or Public Address System playback of recorded special events, conferences, or discussions.
3. For training in work requiring high accuracy in giving or passing oral orders or other operations requiring high skill in oral work.

DUPLICATING OR REPRODUCING PROCESSES.—These are grouped according to the printing surface which transfers the ink or coloring matter to the surface of the copy paper.

Hektographic Process uses an aniline dye base for the coloring matter (for good copy and longer runs a coated copy paper is preferable) in either of two ways:

1. Gelatin process in which a highly absorbent gelatin and glycerine composition surface is the printing medium acting as a transfer agent between the direct reading master on glossy coated paper prepared either in longhand using the special pencil or ink or typewritten using a special ribbon which contains the dye, and the coated copy paper. While multi-colored copy can be produced on one run through the machine, only one, short, single run from each master is practical without sacrifice of legibility.

2. Direct or liquid process uses a mirror reading or reverse image master on coated glossy paper as the printing surface. This master can be either hand drawn or typewritten. Multi-colored copy can be obtained from a single run through the machine. Longer runs are obtainable than by the gelatin process and re-runs can be made at some time after the initial running.

Stencil Process uses a wax-like, emulsion-coated, long-fiber tissue as the printing surface. A hand drawn or typewritten direct reading image is made by displacing the wax coating. Ink passes through the bared fibers

but is repelled by the coating elsewhere. The earliest type was of flat bed construction. Today two other types exist:

1. Rotary type, the commonest, ranges from a manually powered, hand-fed machine to the power-driven, automatic feed and interleaver machine capable of high output and re-runs with proper care of the stencil. The process has wide application.

2. Hand stamp type uses a small stencil which is mounted over an ink saturated pad in a holder—a one way rocking motion squeezes the ink through the bared fibers onto the copy paper. Long runs are possible with careful operation and reasonable production is possible on small cards or sheets.

Offset Lithography uses a rubber transfer blanket as the printing surface. The ink image is picked up from the plate by the rubber blanket and deposited on the copy paper. Very long runs and re-runs are normal when metal plates are used. Only one color can be printed at a time. Many special applications can be made of this process. A logical breakdown of this group is:

1. Direct plate preparation in which the direct reading image is hand drawn or typed on the paper, composition or metal plate using an ink, pencil, or ribbon that leaves a greasy image. This is the quickest and cheapest method of preparing a plate.

2. Photographic plate preparation requires that the master copy be photographed on transparent base film. The image is transferred to the plate using the negative film in contact with a light, sensitized albumen-coated, grained metal plate which is exposed to intense light. The plate then is developed with lithographic ink. This process requires a considerable quantity of expensive equipment and skilled operators but produces work at the professional level of quality and quantity.

Letterpress Printing (from directly inked, an inked ribbon, or a carbon sheet) by set type, raised letter plates of rubber or metal preceded the adoption of offset lithography to the office processes. Both flat bed and rotary types have left their mark on office duplicating practices. The process is well adapted for long run work but it is not as economical, quick, or easy to obtain re-runs at a later date as other processes. Embossed plates using wide inked ribbons or carbon sheets and similar to but larger than addressing plates are used in connection with a modification of an addressing machine for printing the body of the letter, address and salutation at the same impression. Personalized direct mail advertising in very large quantities is one of the very few uses for which this equipment can be justified.

Photographic or Light Sensitized Coating Processes are those which involve the use of light exposure and chemical reactions to obtain the duplicates. In general, these processes are used where the number of copies of one item at a given time is not high. Either single sheet or continuous roll

machines are in use depending on the volume and type of work handled. A very large number of varieties of results can be obtained from any one of the particular processes by a variation of the materials used or detailed application of any one of them. They are important as they can produce copy in the typography and make-up of the original and in small quantities at reasonable cost. A careful review of current methods of duplication may reveal many applications of one or more of these processes which would produce a real economy over present operations (especially in offices which would not normally be expected to have need for the machines known more commonly as "Blueprint or Photocopy" machines). Even a casual study of the processes and equipment in this field may reveal many possible applications to the office manager. There are a number of types of operations which come under this heading.

1. Direct or contact copying holds no secrets from most of the personnel of any engineering, manufacturing, or construction organization, as it is one of their everyday tools that provides copies of their sketches, drawings, bills of materials, specifications, and countless other items, the originals of which consist of a reasonably dense image on a translucent paper or cloth. The contrast in opacity between the image and the carrying sheet must be sufficient for the image to throw a definite shadow as compared with the light which has passed through the blank portion of the sheet. The operation consists of placing the original in the direct reading position over the coated surface of the copy paper and while in this contact exposing them to light rays. The length of exposure will vary with the intensity of the light and the opacity of the original. After separating the two, the copy sheet is developed and fixed by chemical reaction on the coating. Even opaque or two-sided originals can be handled, but additional intermediate transfer exposures are required and a thin copy paper must be used for these transfer copies. Depending on the process used, a single printing or copying operation from a positive (black on white) can produce either a negative or a positive copy.

Negative copy processes are blueprinting (white on a blue background); vandyke or sepia (white on a dark brown background—this print on thin paper can be used to produce positive copy either blue line or brown line); and "Silver Salts" photographic (white on black background—this too can be used to make a positive black on white print). Developing and fixing in these processes consists of a thorough wetting with a chemical solution and washing to remove excess chemicals. Drying follows the final washing. Stretch or shrink of these prints is common.

Positive copy processes produce colored images on a white or nearly white background depending on the translucency of the original. Developing and fixing are done in a single operation either by moistening the coated surface of the copy with a chemical solution or by exposure to aqua ammonia

vapors in a closed compartment. Since no complete wetting or drying take place, stretch and shrink are negligible or non-existent.

2. Indirect-lens and prism copying, more often called photocopying, is a "Silver Salts" black and white process producing negative copy which in contrast is the opposite to the original but which may be reduced or enlarged from the original. Opaque material and two-sided copy can be handled without making the intermediate transfer exposures mentioned under the heading "Direct or contact typing."

3. Microfilm—a process for producing greatly reduced copy of the original for the purpose of record keeping in minimum space or as used during World War II as "V-Mail," a light and compact transfer medium for easily transporting over long distances a large volume of written or printed material. Negative copies on transparent film are the usual product. Positive copies on transparent base film can be obtained in the same reduced size from the negative film. Illuminated enlargers with reading surface or screens are used to make the film readable. Enlarged prints as positive paper copies can be made for direct reference. Many accounting practices can be simplified by the use of microfilm to obtain a film record of spot or closing date conditions from which one group can work while the first group continues its work on the originals. The frequent handling and transferring of voluminous original records can be materially reduced. These machines come in a number of types but, considered as a group, fall basically into:—

Fixed focus on which all work is done at a fixed reduction. Continuous operation at high speed is obtained on this type of machine; as the film width and reduction are fixed the size of originals is limited to those sizes most frequently encountered in general business activity. A few interesting features might be noted (a) with the movement of the film and original synchronized, one document over 2000 ft. long could be photographed in one continuous strip, (b) some machines are equipped with an automatic reversing feature so that both sides of a document are photographed in sequence automatically, (c) in certain types of machines both sides can be photographed simultaneously and will appear on the film side by side. Fixed focus machines are well suited for handling large volumes of correspondence, checks, invoices, sales tickets, and related materials.

Adjustable focus machines are used to handle the work of an organization that has an extremely wide range of materials to photograph up to and including very large drawings on blueprints. Correspondence and other small material can be handled on this type of machine but at lower rates of speed than on the fixed focus continuous type machines. Highly enlarged projections of microfilmed drawings to a wall screen make excellent conference or training material. When this is teamed with a standardized talk played back from a dictating machine record through an amplifier and speaker it provides a training combination that can be repeated at will.

CHECK WRITING, SIGNING, AND ENDORSING MACHINES.—These are a group of machines whose names are descriptive of the work done with them except that their field is not limited to work on checks but can be adapted for inserting the amount or value, signing, or endorsing any paper which is negotiable or of such value to tempt anyone to tamper with it for improper purposes. These machines are designed to do two things primarily, first, to provide protection against fraudulent operations and second, to speed the handling of these valuable documents without loss of this protection. The special requirements of the particular work to be done will determine which of the many models will fill specified needs.

ADDRESSING MACHINES.—While primarily designed to address materials, these machines have been modified to perform other functions to which the printing medium of the machine can be adapted. Among these adaptations are listing, numbering, dating, and the application of signatures. Selection and rejection devices to determine use or rejection of specific items for a certain operation and other coding devices are available. It should be borne in mind that the machine can be used for purposes involving more than the name of a person or company. Its use in setting up coded assemblings of material lists broadens its applications beyond the addressing field. The combination of the addressing machine with other office machines broadens the scope of its service to include payroll accounting and payroll check preparation, complete preparation from a roll of safety check paper to signed dividend checks, and from a roll of plain paper to a completed invoice for regularly recurring customers, to mention only a few. The printing medium may be of two types.

Stencil Type which is prepared on a typewriter in a manner similar to a duplicator stencil. This stencil is held firmly in a cardboard frame, the ink being forced through the stencil onto the surface to be imprinted.

Embossed Plate Type in which the printing medium is an embossed plate and an inked ribbon. The plate, a thin strip of zinc or soft steel is embossed on a special machine by male and female dies in which character selection is manual and the power application either manual or motor. There are two types of embossed plate machines:

1. Single loose plates
2. Single plates linked together

NUMBERING, DATING, RECEIPTING, AND CANCELING DEVICES.—These are usually small, manually-operated devices (frequently various kinds of hand stamps) whose names fully describe their function.

Computing Machines.—Computing Machines cover a wide variety of devices designed to handle the arithmetical work of the office. When combined with other office machines, particularly in the writing and reproduc-

ing group, they handle a very large volume of otherwise complex work at high individual output with a minimum of human error. Basically, there are two general groups—those doing adding and subtraction, and those doing calculating, i.e., multiplying and dividing work. Mechanical or operating details could make an almost countless number of subdivisions which should be given consideration in selecting equipment for the work being done.

ADDING AND SUBTRACTING.—This comprises the bulk of the work and forms three main sections of computing machines. They are—non-listing adding machines, listing adding machines, and registering machines.

Non-Listing Adding Machines consist of a large variety of equipment ranging from the miniature, manually operated pocket type to the large, motor-driven machines. They handle many of the simpler operations that require no machine printed record.

Listing Adding Machines provide a detailed (with subtotals or totals) record of the operation, printed by the machine as the work progresses. These records have many uses in checking, proofing, or posting work. This equipment is available in a large number of variations, both in single or multiple register type.

REGISTERING MACHINES.—These have a wide field of application in the general offices or at various other locations of a business. Cash Registers, Ticket Issuing or Fare Registers, and Accounting Registers fall in this group.

Cash Register types range from the simple, standard cash register in the small corner store (the adding machine or autographic register with cash drawers), to the cash register which produces printed slips, tapes, or cards as well as tapes for recording individual transactions and which has dials for indicating totals of various operations.

Ticket Issuing or Fare Registers which have no cash drawer but issue a sales ticket or fare receipt. These are familiar sights in many retail stores or on the busses of many companies. In addition to the publicly visible evidence of their operations, detail operation tapes and accumulating dials are often a part of such a machine.

Accounting Registers represent the complex form of this type of machine which is frequently seen in the cashier section of large hotels and other institutions where almost instantaneous issue of statements of accounts is necessary. They are also used in accounting departments.

CALCULATING—MULTIPLYING AND DIVIDING MACHINES.—These range from devices such as reckoning tables to the most complex electronic machines possible of consideration. Since the latter are not in common use in general office work, it is sufficient to only mention them in passing. The commoner types of machines handle multiplication and division in a

semi- or full-automatic operation. They are also used for addition and subtraction operations. In combination with a writing machine, they form the base units for bookkeeping and accounting machines. Subdivisions worthy of consideration in a general way are:—

Calculating Tables, Curves, and Slides. These are really devices to expedite calculation work rather than machines. They are useful in making computations involving interest payments, payroll work, invoicing, and a multitude of operations which take into account a number of factors of constant or variable amounts. These latter operations may occur frequently enough to warrant compilation into a complete table or set of tables. The table is a useful and completely satisfactory device from which accurate values can be taken directly. Another device used for reasonably accurate work is the curve or families of curves plotted on various forms of co-ordinate paper. Curves or tables which require interpolation between stated values should be used with a full knowledge of the accuracy that the job at hand requires with relation to the accuracy of the plotted or tabulated data. The slide scale, or slide rule as it is more commonly called, is another device that provides a rapid method of calculation within reasonable limits of accuracy for multiplication, division, or related operations. The accuracy of the data used and the results to be obtained will indicate their scope of application. These tools are designed to utilize the principle of multiplication and division through the addition and subtraction respectively of the logarithms of numbers. Thus the scales are direct-reading logarithmic scales of these numbers.

Calculating Machines for Multiplication or Division of either the full automatic or semi-automatic types offer many so-called standard or special models for presenting results in one of two methods.

Indicating or Non-Printing Machines on which the final or intermediate results appear on indicating dials and are recorded manually on calculation or tabulation forms. They are extensively used despite the possible entrance of the human error factor in transposing numbers in the recording process.

Printing Calculators which may record a detail of the operation or merely the results as the particular job at hand may require.

SPECIAL CALCULATORS.—This group consists of machines found only rarely in a business office. Integrators, mechanical, electronic, or combination machines have been developed to solve extremely complex, technical problems in a matter of hours or days which would normally require months or years of work to solve with the usually available machines. The largest of these types of machines form separate departments of outstanding scientific organizations where the problems are handled on a service-rendered fee basis. The less complex ones are available on a rental or fee basis and require skilled technicians to operate. Their development and success-

ful operation by outstanding organizations tend to show the ultimate that can be accomplished in mechanization in the field of paper work.

Classifying and Selecting Machines.—Classifying and Selecting Machines too, as a group, cover the complete range of simplicity through complexity. Sorting and selecting are intermediate operations, a means toward an end, not an end unto itself. Sorting or selecting operations are preceded by coding and verification of some sort. They may be followed by almost any one or several of many office operations. They all have one requirement in common: the breakdown into which material is to be sorted or the organizations from which an item is to be selected must be first established on a reasonably firm basis. Systems and equipment for doing this work can range from a simple sorting rack with pigeonholes or simple leaf sorters to elaborate sorting machines which form a part of an accounting, calculating, or analysis operation. The divisions within this group are:

Manual Sorting and Selecting Devices involve no "machine" in the sense that a machine is usually thought of. Obvious examples are the pigeonhole racks of the mail room, or the leaf sorters of the file room with compartments or leaves arranged in a predetermined order. These usually involve layout or arrangement work in large or small areas utilizing fixed or movable equipment. Motion study and volume flow analysis studies are indicated as a "must" for a successful installation.

Manual sorting or selecting devices to locate previously coded information usually are used with cards as the handling medium and these cards make use of holes, notches, slots, corner cuts, tabs, or combinations of these used in conjunction with special containers, rods, bars, or slides with or without keyboard arrangements to facilitate quick handling of a large volume of material. The design of any selecting installation requires careful study so that it will serve the purpose for an appreciable time with little modification and so that it will give proper consideration to the volume likely to be handled within each classification so that visual examination and hand sorting are kept to an economical limit but not necessarily eliminated. Step or sequence sorting and multiple sorting may be employed in preliminary sortings to make the final group to be handled small as compared with the whole volume of the material from which the selection is being made. Data are entered on the card in longhand or by typewriter and the coding for sorting is then applied. This coding for sorting is visually verified. In addition to material sorting, all other operations, except, in some cases, card counting, are manual operations when a manual sorting or selecting system is used.

Punch Card Systems and Equipment as applied to office use are, generally speaking, quite elementary in principle. They adhere to the fundamentals

of preparing statistics and follow accepted accounting procedure but differ widely from other methods used to get the results. Basically, the system uses cards into which holes have been punched in predetermined positions to "write" in a coded manner the data obtained. In a properly designed system, this single "writing," punching operation (which is in the main a manual operation) is used in succeeding operations to mechanically prepare the records and summations that the system was set up to supply. The basic operations are punching, verification of the punching, interpretation of the punched data into printed form for ready readability, sorting and grouping, counting where necessary, and tabulating the data as punched on the cards in the proper combinations to obtain the desired results. While elementary in principle, the design, installation, and operation of these systems and the equipment used are definitely not of amateur endeavor but those requiring specialized training, except in the operation of some of the simpler phases where routine operations are performed.

Mail Handling Machines.—Mail handling machines comprise a small group of machines useful in the speedy handling of incoming and outgoing mail.

Postage Affixing can consist of stamp affixing devices or mail metering machines by which the proper postage is printed directly on the envelope or on a gummed strip to be affixed to bulky items. In mail rooms handling large quantities of outgoing mail, these machines seal and stamp the usual size envelopes at a very rapid rate. Metered mail by-passes the cancellation operation which tends to expedite its handling by the post office. Mail meters make the pilfering of stamps impossible, but do not prevent the passage of personal mail in company envelopes through the meter unless there is established a rigid control or censorship over outgoing mail.

Mail Scales of the direct reading postage type for mail of all classes including parcel post, covering the range of weights required in the particular office, are indispensable.

Envelope Sealers ranging from a simple manual device to the automatic-feed motor-driven types are desirable additions when large quantities of lower-cost mailings using preprinted postal permit envelopes are handled.

Folding Machines for handling large releases of identical materials, these machines are real time savers. The name is fully descriptive of their use.

Filling or Inserting Machines insert several pieces of material prefolded to a given size into a slightly larger size envelope at high speed. Their high cost can be justified only when large amounts of this type of work are to be done.

Date and Time Stamps on incoming mail remove all arguments as to how long an item has been in the company's possession. Spring-driven clock,

manual punching and electric clock with automatic tripping powered, printers are commonly used in this work.

Envelope Openers of the high speed, motor-driven type will assist materially in getting through those large incoming mail deliveries quickly and with less danger of damaging the contents than the manually used, letter opening knife.

Intercommunicating Systems.—Intercommunicating systems are used for communication within the office without the use of the public telephone system. In an organization having little need for extensive outside telephone usage, an internal system may have definite economic advantages. The privacy permitted by an individually controlled system between a number of key executives may make such a system desirable. It also offers a method of reducing the extension to extension load of the subscriber's switchboard by interconnecting individuals or departments that have the heaviest internal traffic. Several types of intercommunicating systems are available.

Vocal Systems use conventional telephones of the code ringing, monitor, or dial signaling systems. Conventional telephones or loudspeaking transmission and receiving units are available. These systems vary in cost directly with the size and the degree of privacy desired. The conventional phone with a dial signaling system provides the maximum of both privacy and possible expansion, and the code ringing, common talk line using loudspeaker transmitters and receivers provides the minimum of privacy.

Telexwriting or Teletype Systems provide written or typed communication between two or more points. The advantages of these systems is that a positive record of the communication is available and messages can be recorded while the station is unattended for action on the return of the receiving party.

Signaling and Paging Systems are used as an accessory to the switchboard in large offices for locating persons who are not accessible to the switchboard operator. These systems can save considerable time and expense without becoming a distracting nuisance if used with discretion. The sounding type signal limits, to a predetermined number, the persons that can be called, while vocal paging through a public address system can call anyone and can also be used for making announcements of special or general interest to all or parts of the staff.

Conveying Systems are commonly used for rapid transmission of manuscript material. The sales ticket cash and change handling systems of department stores having central cashiers are an example of such systems. The most widely used in this work are the pneumatic types. Recently constructed large office buildings that were designed entirely for the owners' use have had basket type automatic discharge elevator and conveyor systems installed,

for handling floor-to-floor mail as well as mail coming into and leaving the building. Only large volume operations can justify such installations.

Time and Quantity Machines.—Time and quantity determination and recording devices have a definite place in office operation besides the weight scales and time stamps of the mail room, and the use of many of them may prove of real assistance in everyday work.

Time Recorders either of the spring-driven, clock and manual punching type or the electric clock with automatic tripping printers have a multitude of uses among which are date and time stamping of incoming or outgoing papers in which evidence of time of receipt or dispatch may be important; employee attendance records either for general observance of hours of work or for the establishment of time charges against specific operations.

Counters seem like a simple and almost useless office device, but without them it would not be easily possible to know when enough had been done of a given type of operation. Fortunately, on most office machines where a "count" is necessary, some counting device has been provided. Quite a number of jobs still remain where a counting device operated by simply depressing a key or lever without interfering physically or mentally with the major job at hand provides a production count without making the counting a separate, time-consuming operation. For a combination of sorting and counting where the operation does not permit batching of the sorted material for counting, a battery of counters mounted on a common carrier can provide a running count of the various sorts made as the job progresses.

Quantity Determination and Recording Equipment has very limited application even in the receiving, shipping, mail, stock, and duplicating rooms where, in general, their uses are obvious except for a few indirect counting methods where the weight or thickness of a known count is used to establish an approximate count of large quantities. For a reasonably accurate count of even thin papers, proportional scales can be used by attaching a single sheet to a clip and adding sheets to the platform till the pointer indicates the number of sheets that it is desired to separate from the stack.

Paper Processing Machines.—Paper processing and binding equipment in varying quantities inevitably finds its way into every office that has a duplicating department, because the operations that they are called upon to do at some time or another established a need for them. The larger the department and the larger and more varied its output, the greater will be the number of these machines necessary. Some of them are a necessity if a good job is to be done, others are nice things to have available to simplify or broaden the scope of operations. Care must be taken not to assume a heavy expense by using unnecessary equipment.

Paper Cutting Equipment ranging from a pair of large shears used in trimming blueprints to the power-driven cutter capable of slicing through a 2 in. or thicker pile of paper 24 in. across will cover the range of this item. Shears and a hinged-knife photographer's trimming board are items necessary to the blueprint and photocopy processes. These, also, are the minimum even a small duplicating unit should have.

Paper Punching or Drilling Equipment in some form is an essential part of every office. Simple manual, lever-operated punchers for single or multiple bale punching are satisfactory for general use. Single-spindle hollow drills rotated by a manual twirling motion or an electric motor are more desirable for handling the large amounts of this kind of work encountered in a duplicating room. The latter have interchangeable drills for various size holes and adjustable guides for locating drilling points. Attachments to perform other operations such as round cornering and slotting with drilled holes for loose ledger post binding are available for the large machines.

Binding Equipment of only the simplest types can be justified for general office work or even for the large duplicating department. The common forms of binding are:

1. Stapling or wire stitching using either pre-formed staples or wire from a spool automatically cut and formed as used. Both are available in hand-powered models, but if the amount of work justifies it, foot-powered or motor-driven staplers and stitchers are obtainable. This type of binding can be the "through" type along one edge or across a corner, or can be saddle stitched on the folded edge of assembled folded material.

2. Padding is a simple assembling, jogging, compressing, gluing, and cutting operation. It requires the following simple equipment: the padding counter (which is an adjustable device for approximate sheet count using the thickness of the pile for the count); the padding or tableting press (consisting of a sloping V trough into which alternate packs of sheets and backing boards are stacked and jogged to obtain a smooth edge for glueing); a relatively thick, strong pressure board (the approximate size of the material being padded) to transmit the pressure to the stack when the screw take-up of the adjustable clamp is drawn up, and a padding cement brush. When hot glue is used a double boiler type glue pot and a single-bladed knife for cutting apart the pads after the glue has set and dried are necessary. This is an inexpensive and very handy set of accessories. The cost of accessories can be reduced by using cold glue of a rubber-like composition which is slightly higher in cost than hot glue but makes a more desirable pad.

Folding Equipment can be justified only where a large volume of similarly folded material must be handled. Its location can be either in the mail room or duplicating department. Folders are built to make single or multiple folds

parallel or at right angles to each other. The latter are more expensive and require greater care to set up and adjust.

Round Cornering, as its name indicates, rounds the corners of sheets to improve their initial appearance and reduce dog-earing in use. Economical, hand-operating machines are suitable for the occasional job but foot-powered machines should be considered if frequent jobs of considerable quantities are to be handled. Discs for different radius corners can be installed in either type of machine.

Assembling or Collating Equipment usually consists of racks or a rotating table and manual pick-up. Semi-automatic equipment has not yet been widely used and full automatic equipment is too expensive for any but the very largest printing or binding establishments.

Perforating Equipment of one form is used to produce the rows of small holes that make the separation of the two parts of a single sheet an easy tearing operation along the prescribed line. Attachments to offset lithographic presses can be obtained to do this job within certain prescribed limits. Foot- or motor-powered perforators are available. These can be justified for the office duplicating unit only in rare instances.

Perforation of a design, dates, or other text matter are sometimes used for receipting or canceling of valuable papers. These machines are generally hand operated.

There are a number of other devices and machines that have a narrower and more specialized application (not necessarily a part of the office operation) and that could be included in a miscellaneous heading but their nature makes their inclusion here questionable. Furniture and borderline items of this group are really not office machines or devices and are treated elsewhere in this book, as are files, filing systems, and visible card record systems.

The use of office machines should be approached not in the hope of providing a "cure-all" by getting all work done mechanically and automatically but as a means of facilitating work and increasing effectiveness. Over-mechanization can be as bad as under-mechanization in the final analysis, for excessive expenditures for complex and infrequently used equipment, which may be expensive to maintain and require highly skilled personnel to operate, may prove, in the long run, as costly as a larger group of persons using a larger number of simpler and less expensive machines. This should not be considered as an indictment against the use of elaborate and complex equipment when the results demanded and the volume of work require its use. It should be regarded, rather, as an emphasis of the fact that to operate "in a prudent and thrifty manner" it is necessary to be constantly on the alert against using highly-complicated and unnecessary machines. This is one of the essentials to maintaining the fine balance and perspective that distinguishes the successful office executive.

Office Machinery—Its Need, Selection and Maintenance

Need.—The mere fact that an office appliance capable of performing a given task is available is not sufficient justification to warrant its purchase for use in an office where that task is being performed. It may be that the task can be performed more satisfactorily and more efficiently by manual, than by mechanical, methods. This possibility emphasizes the necessity for the most careful and accurate determination of the need for an office appliance. The decision that a machine is needed should not result from a salesman's presentation, a recommendation of a friend or colleague, or a suggestion from a subordinate. These opinions may be taken into account, but in the last analysis the decision should be reached only after a careful survey of requirements has been made. The fact that a machine is available which will do the work is of interest, but is not evidence that the machine is needed in the particular office. In determining the need for a machine, the office manager should give full consideration to the following factors:

The Volume of Work to Be Done. Many times a machine application is possible, but the cost of the machine in relation to the use it will receive and the clerical time it will save do not justify its application. In other situations, the volume is such that better service, greater promptness, or the elimination of bottlenecks might result from the use of a machine.

The Need for Accuracy. In order to eliminate the necessity for checking and rechecking work in which accuracy is of the utmost importance, it may prove economical in time and cost to install a machine which possesses the necessary balancing features to increase the accuracy of the finished work. In this connection a word of caution concerning accuracy may be helpful. The need for accuracy and the degree of accuracy desired should be determined. Many cases have been noted where work is checked and rechecked to establish a high degree of accuracy of a record which serves as information only and in which only relative accuracy is necessary. Particular attention should be paid to the accuracy of records which involve (1) accounting for money or time and (2) customer or employee relations.

Speed with Which the Work Must Be Completed. Rush jobs—peak loads and work involving deadline dates for completion are the most common in the daily office routine. Where such conditions frequently arise the need for a machine may be justified. An illustration of such a condition might be the payment of invoices on a particular day in order to take discounts, or in forwarding customer's invoices or statements at the end of the month in order to expedite the collection of accounts receivable.

To Eliminate Job Monotony. There are a few types of clerical work which involve considerable monotony for the average employee. Unless means are found for relieving the monotony of the work, production and

morale drop and labor turnover increases. These situations cannot always be treated by the application of a machine, but in many instances they can be improved by this practice, even though no measurable saving arises from the machine installation.

To Reduce Operating Costs. If careful cost study reveals that the installation of a machine will make possible the performance of a task faster than it could be manually performed, it is likely that the purchase of a machine is justifiable. It must not be overlooked, however, that it serves no useful purpose to save some of an employee's time by installing a machine unless the time so saved can be utilized in the performance of other necessary work. The cost study should be based on actual costs rather than estimates. In many concerns, a machine installation will not be authorized unless it will save its cost, usually in not more than five years. This practice, of course, is not followed in those cases where manual performance of the work is not possible.

Selection.—It is important that careful attention be given to the selection of a machine so that the process results in the choice of the machine best suited for the work to be done. In many instances, there are machines of several makes which will accomplish the same result. The assumption cannot be made, however, that each machine will accomplish the result with the same degree of over-all efficiency. Thus it is necessary to examine carefully each machine designed for the particular type of work in order to select the one best suited. Among the factors to be considered in making the selection are:

Speed of Operation. In practically all cases the speed of the machine will be greater than the speed of the operator. Oftentimes the speed of machine operation is overemphasized by all parties concerned.

Simplicity. A machine that is simple is easier to operate and easier to maintain. A machine built for a specific job is usually better than one not so built and to which gadgets must be added to make it possible for the machine to do a particular job.

Flexibility. It pays to use highly-specialized equipment where the volume of work is sufficient to keep that equipment busy. Oftentimes, however, because of limited volume it is more desirable to purchase a machine which has sufficient flexibility to permit its use for different types of work. In many cases, if this were not possible, the purchase of the machine could not be justified.

Portability. In order to schedule the machine for different jobs, it may be necessary to move it from one office to another. Thus size and weight of the machine are important.

Time Required to Train the Operator. Good planning suggests that there should be always available a substitute operator for each machine in the

office. The simplicity of a machine and its ease of operation are important factors in the time and cost of training operators.

Adaptability. The ease with which a machine can be adapted to an existing system is an important consideration. Oftentimes the application of mechanical methods requires the complete upheaval and rearrangement of the forms and records involved in a system. Moreover, in order to avoid the parallel operation of two systems for an extended period of time, it may be necessary to copy the information on existing records to new forms. This may prove to be a costly operation. Frequently too, other unrelated systems and procedures must be adjusted. Users of the record information must become familiar with the new forms and clerical personnel must be retrained.

Maintenance Service. It is important to choose machines manufactured by companies which are in a position to supply necessary repair parts and/or maintenance service promptly. Parts and repair service are often difficult to obtain if the machine requiring them is of a foreign make.

Operating Cost. Where the use of several identical machines is contemplated, the operating cost becomes an important factor. Among cost items involved are supplies, space occupied, special equipment needed, forms, repairs, power consumed, etc.

Cost of the Machine. The first cost may not be the most important cost, nor yet the most important factor to consider in choosing the machine. The objective is to get the machine best suited to the purpose. If this objective is achieved—even if the price paid for the machine is higher—it will prove to be the most economical. Too often the choice of machine is based entirely upon cost, and other important elements are overlooked such as those already mentioned. In connection with the cost, the purchaser should consider the durability of the machine, its estimated life, its residual value after depreciation, and the seller's policy with respect to "turn-in" on improved equipment. The purchaser's company should have a clearly-defined policy with respect to exchanging old machines for new ones. No single policy will cover the various machines usually found in the office. It may be desirable to turn in a correspondence typewriter at the end of two years, but this might be an expensive practice if applied to a billing machine. It should be noted that some machines are not sold but are rented. If this is the seller's policy, the buyer should carefully investigate his policy with respect to exchanging the rented equipment for new and more advanced models as well as the length of the lease, the conditions under which it may be canceled, and the provision made for servicing the leased equipment.

If several machines are to be purchased it is usually desirable to run a test of the different makes which are being considered. The conditions under which a practical test is run should be carefully set forth so that all companies whose machines are represented can be fully acquainted with

them. It may be desirable to have the machines operated for a specified period of time by operators supplied by the sellers and to then have the machines operated for an equal period of time by operators supplied by the buyer but trained by the sellers. Careful records of production, spoilage, each item of operating costs, shutdown time for repairs, make-ready and clean-up time, and all other elements of operation should be kept. This comparative cost study should be planned for, and the forms designed, and the instructions issued before the test demonstration takes place. It is important that all participants be informed beforehand that comparative results will not be given to them. They may be given the results of the test covering their own machine, but should under no circumstances be given the test results made by competitors' machines. If a single machine is to be purchased, such an elaborate procedure is not necessary and is seldom desirable. It may, however, be worth while to have one or more machines brought in for brief demonstration periods before a final decision is made. Many offices are burdened with the cost of depreciation and upkeep of machines which should not have been purchased because they were not needed and of others which are not used because they are not suitable for the work to be done.

Maintenance.—High level volume and quality of work are not obtainable unless the operator is properly trained and the machine used is in suitable condition for work. It is not good sense to invest money in office or in other kind of machinery and then through mistaken sense of economy fail to provide for its adequate maintenance. The problem begins with the user of the machine. Operators should be trained in the care and use of the equipment assigned to them. In part the seller should take some responsibility for this training, but to be certain that it is complete and effective the office manager must assume full responsibility for it. The seller's instructions are seldom in the most suitable form for use by the operator. They should be combined with other instructions prepared by the office manager and issued as standard practices for the care and use of equipment. Some large concerns have developed their own maintenance and repair service for all types of office equipment which they own. This is not an economical approach for the average machine user and in many cases it is not economical for the large user. Machine manufacturers usually prefer to service their equipment in order to make certain that the user gets complete satisfaction from its use. To force this point of view for their own protection they are usually unwilling to cooperate with companies that wish to develop their own repair service. Without such cooperation, through which repair parts may be obtained and mechanics receive factory training on machines, the problem of establishing a company maintenance service is exceedingly difficult. It is customary for machine manufacturers to offer to users

various forms of contractual service agreements in order to provide the most inclusive and economical repair and maintenance service.

CONTROL OF MAINTENANCE.—Responsibility for the control and supervision of maintenance work must be fixed. Machine operators should not be allowed to call service agencies directly nor should they be permitted to sign the service mechanic's report when his work on the machine has been finished. All needs for service should be cleared through one person or a group and all service reports should be signed in the same manner. Records must be kept of the frequency, nature, and cost of service on each machine. Such information is helpful in reducing maintenance cost and is a factor to be considered in selecting new machines. The maintenance supervisor must develop standards by which the quality of maintenance and repair work can be gauged. He must take the responsibility for checking up on all such work to make certain that it is promptly and correctly done and that the charges for time and materials are correct.

CHAPTER 16

OFFICE SUPPLIES AND FORMS

Supplies—Specification, Purchase, and Control

Reducing Costs.—It will be recognized upon reflection that it is the least expensive items of stationery in their individual value which run into the largest losses because of the multiplicity of units. Therefore in order to obtain maximum economy, and the most effective usage, every item of office supplies, no matter how insignificant in unit cost, must receive consideration. Responsibility for the waste in office supplies may largely be placed upon the individual worker insufficiently trained in the use of materials by the commercial schools, followed by lack of proper instruction in the first period of employment. Such waste cannot be attributed to the worker alone. A large proportion of the money spent annually on stationery and office supplies is often wasted for reasons which are the sole responsibility of the management. Wastes which can be safeguarded by the management may arise from many causes: failure to determine the exact requirement of the business, lack of standardization, carrying special brands of stock material to meet personal likes and dislikes, unscientific methods of purchasing, such as small lot orders when quantity purchases would lower the price, and methods of storage, distribution, and preservation of supplies.

The problem of how to effect a reduction in the annual cost of furnishing the materials necessary to the performance of office work and to the procurement of materials offering the most effective usage can be completely answered only by good office management. It also involves the cooperation of the clerical employees to the point where they give the same care to the supplies they use as they would to their own personal belongings.

Standardizing and Testing Supplies.—Standards are being gradually set up, and with each one adopted a little more is learned by the consumers of what goes into the manufacture of office supplies, so that we find more specifications than ever before sent out with price inquiries. The office manager is now interested in knowing the percentage of water in mucilage, the number and weight of threads in a typewriter ribbon, the weight and texture of carbon paper for example, whereas price was the principal consideration not so long ago. It has been found that there are many disadvantages in carrying standardization to extremes, because of

differences in local conditions under which the material is used as well as the varying needs of different types of business offices, requiring variations in the specifications to obtain the best results. It needs a great deal of study of complete data and a long series of properly conducted and recorded tests before setting up a standard. A subsequent constant checkup at periodic intervals is also necessary in order to be certain that provision will be made to take care of revisions in modern office practices.

Testing.—Tests are valuable in determining the adequacy of the material because it is clearly uneconomical to pay for value beyond the use for which the material will be applied. A streetcar transfer slip would cost ten times as much on rag bond as on newsprint but it is used only once. A test made in the executive office can seldom be used as a yardstick for the accounting, sales, or factory offices, so it is best to make as many tests within reason as there are different varieties and combinations of conditions, if the results of the tests are to be the basis of the standards. It is preferable that such tests be made under actual working conditions, rather than by mechanical testing devices. The basis of a standard must be sound if it is to hold the structure, therefore no attempt should be made to rush testing as it would lead only to unreliable data and consequent mistakes. Anyone who attempts to determine the office supplies requirement of his business as a whole, make tests and set up standards will soon see the difficulties facing a management association in any attempt to compile a set of standards for universal use or to establish a set of universal specifications.

Purchasing, Storing, and Issuing Supplies.—There is much to be said in favor of centralized purchasing. In the case of an organization with territorial headquarters or branches it is evident that the combined purchasing power of all departments will reduce costs because of increased quantities, providing each department is not permitted to use different brands or types of the same materials used by others. A personal preference in this respect should be ignored in the office as is the case in the factory where the workman is not allowed to choose his own make of lathe, waste, lubricant, and so on.

In the case of organizations spread over extensive territories, other elements are injected into the question of centralized purchases, such as distribution, transportation costs, and the good will of local merchants. These must be balanced against quantity prices, but it should be kept in mind that combined purchases mean centralized responsibility and control. Experience has demonstrated that this will result in a closer check against overstocking, lack of uniformity in stock items, and excessive buying of special items. Office supplies being issued monthly are easy to

forecast, therefore it can be arranged to contract for a year's supply to be delivered and paid for as required, instead of ordering a temporary stock replenishment. This results in considerable discounts from small lot prices. It is also easy to schedule yearly contracts to expire in the suppliers' off-season when the best prices are obtainable, which also increases the goodwill of the vendors who have their overhead to think of in dull periods. There are those of the opinion that the purchasing agent should not give advice and that his duties begin and end with securing required materials at the lowest market prices. This attitude may react to their disadvantage and deprive them of something better suited to their purposes. It should be remembered that salesmen are a constant source of information to the purchasing agent in keeping him posted regarding office supplies.

STORING.—Unless surplus office supplies are stored in charge of one person in one office, much waste is bound to result. In the first place, the average office employee has very little respect for office supplies and has neither the facilities nor the knowledge to preserve them properly and secondly, no proper records as to storing, handling, and issuing will be available without centralized responsibility. It is a practice in some offices to allow the clerical staffs to help themselves to stationery without control, but offices never do this with the postage stamps, for the very good reason that the value of the postage stamp is impressed upon the individual through personal purchases. Stationery is very expensive and should be accorded the dry, clean, and neat storage treatment that its large yearly expenditure deserves.

ISSUING SUPPLIES ON REQUISITION.—Requisitions on the stationery storeroom should be closely watched and quantities compared with previous requisitions, after allowing for consumption fluctuations of the using offices and the trend of the business. This control by the stationery storeroom can be more effective if the requisition is designed in such a way as to include information such as: amount on hand, average monthly consumption, number of employees in office, number of typewriters in office, etc. It is usually the lot of the office junior to compile the monthly requisition for stationery. The first requisition is taken very seriously and every item on the desks, in the drawers, and supply cupboard is taken into account. The next month the drawers are omitted; the third month the requirement is only estimated; and from then on, the month's requisition is copied. The result is that a complete house cleaning of almost any office will bring to light from 25 to 50% more supplies than it is necessary to carry on hand, and extreme cases of from 500 to 1000% overstock in some items have been found. Surplus supply stocks are likely to become spoiled or obsolete before being used.

Many concerns endeavor to prevent this condition by :

1. Restricting requisitioners to one week's supply.
2. Providing each office with a suitable supply cabinet and designating one person in each office to be responsible for requisitioning, controlling, and issuing supplies within that office.
3. Requiring office supervisors to approve all requisitions for supplies and to account for their proper use.

In one fairly large department store, a study was made by the office methods division to determine the normal rate of consumption of each supply item in each supervisor's section. A copy of the schedule was presented to the supervisor with instructions as to quantities of each item which should be requisitioned at stated intervals.

In connection with this and related problems of controlling office supplies, the cost of messenger service for delivering supplies to using departments, possible interruptions to work in those departments caused by lack of supplies, and the difficulty of regulating the stationery storeroom force must be considered. It is sometimes more economical to absorb a small amount of waste than to increase the cost of delivery service or storeroom operating expense. Scheduled deliveries of supplies packaged according to use requirements (for predetermined intervals) and close watch over usage by supervision will be helpful in better control. Moreover, if the cost of supplies is reported on the monthly overhead statements given to supervisors, the effect will be to stimulate their interest in reducing waste of these items.

Control Over Supplies.—There is no question that much of the waste now going on could be curtailed by closer attention to instruction and supervision, upon which the economical use of office materials usually largely depends. Instructions regarding what to use in the work should be amplified by an explanation of how to use it. There is but one way to secure the best results in handling office supplies and that is to teach office employees to value them. Until this is done, it will be unfair to expect any special care to be taken. An employee who throws partly used file folders, carbon paper, typewriter ribbons, pens, pencils, and other supplies in the wastebasket or carries these home for personal use without a thought, would be shocked if it were suggested that the same thing be done with the office petty cash, yet the loss to the firm applies in both cases. Small wastes of this kind may not be important in an office with half a dozen clerks, but they do constitute a considerable leakage in a thousand such offices, or an office with hundreds of clerks. A way must be found to make the employee conscious that office supplies represent money.

CONTROL METHODS.—Setting up a control over office supplies is something that may be overlooked because the yearly expenditure for such ma-

materials is small, but whether the organization be large or small, the following steps should assist in improving control:¹

1. Make a list of all office supplies used, classifying the items according to volume and value.
2. For first attention select those items which appear to offer the greatest possibilities for expense reduction.
3. Survey the supplies offered on the market, selecting the most suitable and least expensive substitutes for those now being used, and make such tests as may be necessary.
4. Standardize the principal items and record the standards.
5. Decide on the best purchasing, storing, and issuing methods, and record them.
6. Prepare standard instructions covering the use of supplies and distribute to clerical employees.
7. See that the instructions are carried out.

Anyone giving this procedure a trial should change it to suit the necessities of his own requirements. It should be used only as a guide to practices that have produced satisfactory results.

Forms—Design, Review, Procurement

Forms Control.—Every business should make some provision for the regular and systematic review of its forms if the organization is to operate effectively. This can best be accomplished if the responsibility for forms control is assigned to one individual or section. The control procedure will vary with the size of the office and number of forms employed, but the basic principles involved in forms control which apply generally are as follows:

1. All forms used by the organization must be subject to periodic review.
2. Standards must be set up and adhered to on all forms.
3. The control must include the authority to determine the physical and functional specifications in accordance with the standards adopted.
4. The control authority must serve as a contributor, rather than as a censor of forms.

Organizing for Forms Control.—The first step in organizing for forms control is to set up a file in form number order containing a copy of each office form. Those forms which do not have form numbers can be filed by

¹ For detailed economy practices refer to complete coverage under Research Project, No. 18, *NOMA Forum*, Vol. XVII, No. 5, pp. 3-17.

PHYSICAL SPECIFICATIONS					
ITEMS TO BE CONSIDERED	YES	NO	DOES NOT APPLY	OK	MEMO
1. Will grade of stock outlast retention period?.....					
2. Will grade of stock withstand amount of handling?.....					
3. Is stock correct for process of duplication used?.....					
4. Is stock same as other forms with which this is filed?.....					
5. Will weight of stock withstand amount of handling?..					
6. Is weight correct for number of carbon copies to be made?.....					
7. Is weight correct for filing requirements?.....					
8. Is weight correct for printing requirements?.....					
9. Is white stock used?					
10. Is some other standard color used?.....					
11. Is the size correct for cutting from mill size sheet?...					
12. Is the size correct for machine requirements?.....					
13. Is the size correct for mailing in envelope?.....					
14. Is the size correct for ease of handling?.....					
15. Is the size correct for two side printing?.....					
16. Is the size correct for length of run?.....					
17. Should the form be ruled?.....					
18. Should the form be bound?.....					
19. Should the form be perforated?.....					
20. Should the form be padded?.....					
21. Should the form be prenumbered?.....					
22. Should the form be gummed?.....					
23. Should the form be collated?.....					
24. Should the form be punched?.....					
25. Is the form printed in colored ink?.....					
26. If so, is colored ink necessary?.....					
27. Is the form printed on reverse side?.....					
28. If so, can the printing on back be eliminated?.....					

Figure 97. Forms

department or section. The next step is to prepare a résumé of the use of each form. The résumé should tell the purpose of the form, where it originates, how many copies are made and to whom they are sent, how much handling the form receives, how long it is retained, how it is filed, whether it is completed manually or by machine, what other forms are used in connection with the transcription of information to or from it, and the estimated quantity used per year. A check list of items such as these is illustrated in Figure 97. (Refer also to Figures 107 and 108 of this section.) With this information on file it then becomes necessary to establish the standards against which the specifications of each form are to be checked.

One of the more difficult standards to determine is the one which will serve as a guide for the selection of the proper grade of paper for each form. To aid in determining this standard it is suggested that the retention period of each form and the degree of handling it receives be recorded as in Figure 98.

FUNCTIONAL SPECIFICATIONS					
ITEMS TO BE CONSIDERED	YES	NO	DOES NOT APPLY	OK	MEMO
1. Can this form be completed in conjunction with another form?.....					
2. Does form have a descriptive title?.....					
3. Can the form be simplified by elimination of unnecessary data?.....					
4. Is the information required clearly indicated?.....					
5. Should form carry instructions as to its proper use?...					
6. Does data appear in order of transcription to or from form?.....					
7. Are all recurring data preprinted?.....					
8. Are spaces for entering data properly proportioned?...					
9. Has space been provided for pinning or pasting?.....					
10. Is item by which form is filed in most conspicuous position?.....					
11. Have printed items which are subject to change been avoided?.....					
12. Does form contain means of identification in case it should become detached from other papers?.....					
13. If prepared by machine is spacing correct?.....					
14. Are all headings visible when form is being typed?...					
15. If printed on back, should form be "tumble" design?...					
16. Should "Box" design be used?.....					
17. Can ballot type questions be used?.....					
18. Should the form be a continuous type?.....					
19. Should the form be a snap-out type?.....					
20. Does the address appear in proper space?.....					
21. Have colors been used for sorting when feasible?....					
22. Should form number be assigned?.....					
23. Is the quantity correct?.....					
24. Does the form have all necessary approvals for printing?.....					

Design Check List

RETENTION PERIOD				
This form is retained.....years				
If no definite retention period, check approximation	0-5 yrs.	5-9 yrs.	10-25 yrs.	Over 25 yrs.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AMOUNT OF HANDLING				
	1 Very Little	3 Moderate	5 Fairly Active	7 Severe
First 3 months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4th to 12th months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thereafter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Subject to many erasures <input type="checkbox"/> Yes <input type="checkbox"/> No

Figure 98. Form for Recording Retention Period

By assigning a numerical value to each of the degrees of handling, it is possible to set up a uniform rating system to reflect the amount of handling a form receives. The numerical values suggested are those shown immediately above the headings indicating the degrees of handling.

By adding the total score for each form and dividing by 3, an average handling factor is secured. To illustrate, assume that a form receives "severe" handling for the first three months (7 points), "fairly active" handling for the fourth to twelfth months (5 points), and "moderate" handling thereafter (3 points), giving a total score of 15. Dividing 15 by 3 gives an average handling factor of 5. If the form is subject to many erasures, the handling factor is increased by 1 point. When this information has been secured on each form it is possible to start constructing a paper standards chart similar to that shown in Figure 99.

The grades of stock indicated in Figure 99 are shown merely for illustrative purposes. To determine which stocks are to be shown in each block, it is suggested that a representative group of the forms falling into each classification be selected for study. Examine copies of a number of forms printed on each of the paper stocks used and determine the condition of the paper after ten years, fifteen years, twenty years, etc. Pay particular attention to discoloration and brittleness. From such a study it is relatively easy to decide which stock or stocks should be indicated in each block of the chart. It is always desirable to allow a margin of safety and, if there is any doubt as to which of two grades of paper to use, always select the better grade.

When the standards for paper have been determined, a procedure for referring all forms to the forms control authority should be installed.

Forms Design.—Before evaluating the design of a form it is first necessary to know the purpose of the form. All too often the original purpose for which a form was designed is, by reason of change in system, obscured to the point where the entire form or a certain portion of it is no longer necessary. Therefore, the primary question in reviewing any form is "Why is this form necessary?" If the form is found to be essential, the next step is to determine what information is required and the easiest source from which to secure the necessary data. Having decided on what items must be completed and the easiest source from which to obtain that data, the final step is to design the form so it can be prepared with a minimum of effort and, after completion, can be used most effectively.

Functional Specifications.—In designing a form, it is most important to recognize the difference between merely arranging all the items on the form in a pleasing manner, as opposed to arranging the items so the form can be easily and rapidly completed and will provide necessary information in logical sequence. Functional form design, which relates to the completion

PAPER STANDARDS CHART									
HANDLING FACTOR	RETENTION PERIOD	1	2	3	4	5	6	7	8
		#4 Sulphite Bond	#4 Sulphite Bond	#4 Sulphite Bond	#4 or #1 Sulphite Bond	#1 Sulphite Bond or #1 Sulphite Ledger	25% Rag Bond or #1 Sulphite Ledger	50% Rag Bond or #1 Sulphite Ledger	50% Rag Bond or #1 Sulphite Ledger
		#4 Sulphite Bond	#4 or #1 Sulphite Bond	#1 Sulphite Bond or #1 Sulphite or #1 Sulphite Ledger	#1 Sulphite Bond or 25% Rag Bond or #1 Sulphite Ledger	#1 Sulphite Bond or 50% Rag Bond or #1 Sulphite Ledger	#1 Sulphite Bond or 50% Rag Bond or #1 Sulphite Ledger	#1 Sulphite Ledger or 50% Rag Ledger	50% Rag Bond or #1 Sulphite Ledger
		25% Rag Bond or #1 Sulphite Ledger	25% Rag Bond or #1 Sulphite Ledger	50% Rag Bond or #1 Sulphite Ledger	50% Rag Bond or #1 Sulphite Ledger	50% Rag Bond or 50% Rag Ledger	50% Rag Bond or 50% Rag Ledger	50% Rag Ledger	50% Rag Ledger or 75% Rag Ledger
		50% Rag Bond	50% Rag Bond	50% Rag Bond or 50% Rag Ledger	100% Rag Bond or 50% Rag Ledger	100% Rag Bond or 50% Rag Ledger	50% Rag Ledger	75% Rag Ledger	100% Rag Ledger

Figure 99. Paper Standards Chart

and use of the form, is often placed in a position of secondary importance to that of physical specifications which relate to the kind of paper used, form size, padding, punching, etc. While the physical specifications are important in that they determine the purchase price of the forms, it is a mistake to assume that the purchase price, because it is tangible, represents anything like the total cost of the completed forms. The average form costs less than one cent per copy, but when the value of the labor and overhead involved in completing a form is included it is nearly always at least ten times the cost of the actual form. Therefore, the functional design of forms is the most important element in forms control. There is no "one best way" to design a form, but there are specific questions relating to functions which should be considered in designing every form. Some of these questions are discussed below.

1. *Title.* Every form should have a clear and descriptive title. This not only acts as a means of identifying the form, but also gives the user a knowledge of its purpose at a glance. Vague titles, such as "Accounting Department Work Sheet," should be avoided.

2. *Is the information required clearly indicated?* The data to be entered should be clearly identified. While it is desirable to keep captions brief, the words should be carefully chosen so there can be no mistake as to the information required. Avoid abbreviations where there is any possibility of ambiguity.

3. *Unnecessary data.* All unnecessary data should be eliminated. Frequently items are included even when they are used only in rare instances. Since every extra item requiring an answer causes additional work, a form should call for only essential information and all other data should be excluded.

4. *Instructions.* If the title and caption headings are clearly worded it is usually unnecessary to include supplementary instructions on a form. In the event instructions are necessary they should be printed near the items to which they refer, preferably in such a position that they will be read just prior to filling in the portion of the form to which they pertain. Instructions are often disregarded because they are too lengthy and involved. Therefore, to be most effective, instructions should be brief and subject to only one interpretation.

5. *Form numbers.* If a form is to be continued in use for some time, it is well to assign a number to it. A number serves as a positive means of identification in any kind of reference to a form. Furthermore, without a form numbering system it is almost impossible to exercise proper control because of the difficulty of indexing by form title. There are many different form numbering systems in use, the most common of which is a straight numerical system. Another system reserves certain blocks of numbers for

all forms used for a similar function or used by one department. Still another relatively simple system is to determine form numbers on the basis of a code in which each two digits represent a separate index. For example, the first two digits might indicate the type of transaction, the second two the department of origin, and the last two the kind of form, e.g., envelope, file card, continuous, etc. In general it is better to avoid using suffixes to form numbers and to assign separate form numbers even though the variation between two or more forms is small. Form numbers should, if at all possible, always be shown in the same general location.

6. *Are spaces for entering data properly proportioned?* Proper distribution of space saves time and eliminates errors in completing a form. It is necessary to know how much space is required for an answer and the manner in which it will be entered, bearing in mind that handwritten forms normally require more space than those completed by machine.

7. *Can the form be completed in conjunction with or combined with another form?* Frequently it is necessary to make up several forms which relate to a single transaction, and certain information, such as name, address, invoice number, date, etc. may be common to all of them. In such instances every effort should be made to have the common information located in the same position on each form and to combine the several forms into a collated set. The common information can then be completed in one operation thus reducing labor costs. If the forms are completed in any volume, consideration should be given to having them precollated with one-time carbon paper. The possibility of "snap-out" sets should not be overlooked in this respect since they not only facilitate removal of the carbon but permit collating forms of various sizes. Through the use of blank strips or cutouts on the carbon paper, it is possible to reproduce information on certain parts of the set without showing it on others.

8. *Will the creation or revision of the form require a revision of others?* Whenever a new form is introduced or a major revision is made of an existing form, other forms used in the same procedure should be checked to determine whether they too should be revised. This is particularly true of any form on which information is posted, or from which information is secured for transcription to another form, since the order of transcription and the captions should be the same on both forms.

9. *Can the form be identified if it becomes detached from a file of related papers?* Every form should provide enough information to identify the case of which it is a part. Usually a name or a number will be sufficient for this purpose.

10. *Is the identification by which the form is filed in the most conspicuous position?* The preferred location for filing data is the upper right or upper left corner of the form. Filing data should always be placed as near the top of the page as possible.

11. *Box Design.* The so-called "box design," where each item is framed in a rectangular box, can be used many times to better advantage than the conventional method of printing each question with a dotted line following on which the answer is to be written. Each question or heading is printed in the upper left corner of the box allowing the entry to be made directly below, and thus the full width of the horizontal writing line can be used. This type of design is particularly effective when only short answers are required and where it is desirable to keep the depth of a form to a minimum. The filled-in portions of a form are usually more legible when box design is used.

12. *Ballot-type entries.* Whenever preselected answers, such as "yes" or "no" are required, ballot-type entries can be used effectively. This consists of printing a small square box in front of each of a group of items so that the answer can be designated by placing a check mark in the box opposite the proper answer. The ballot-type entry not only speeds up completion of the form but also insures a definite answer.

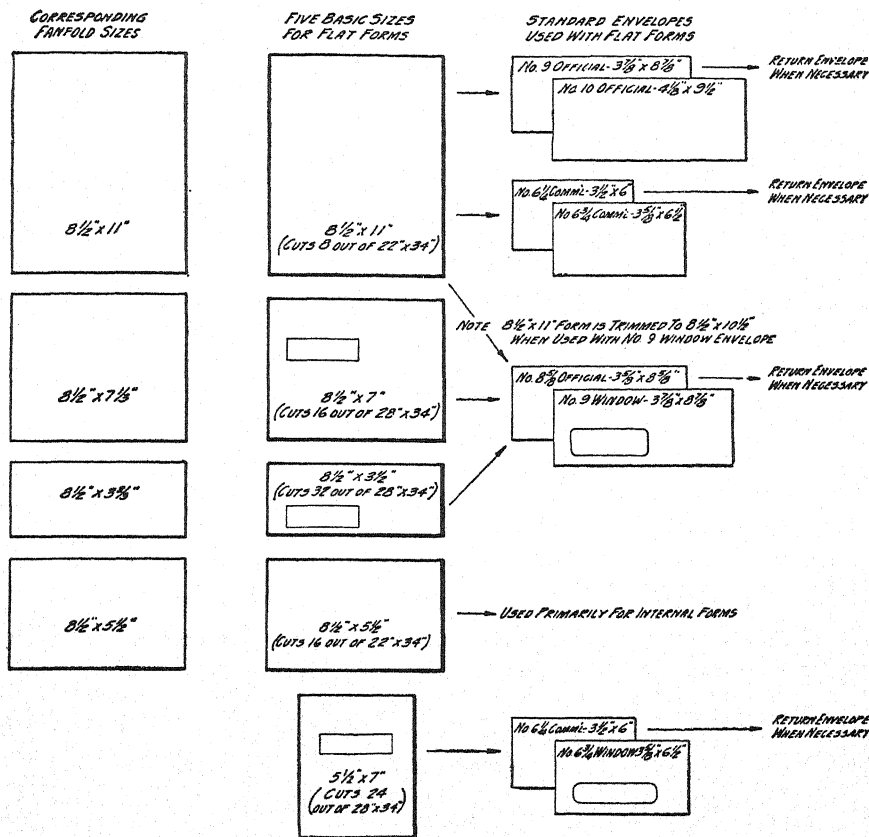
13. *Location of headings.* Headings or captions are sometimes placed below the space provided for filling in the information. The words number, street, town, city, or state are frequently printed in this position. These headings are not visible when such forms are completed by typewriter and, therefore, in order to avoid this it is desirable to place all headings at the side of or above the space provided for the answer.

14. *Machine specifications.* Any form which is to be completed in whole or in part by machine should, if it is to be used efficiently, be designed to meet the requirements of the particular machine. Practically all writing machines are designed for entering six lines vertically to the inch. However, the number of characters to the inch horizontally varies with the type and model of machine. Most large printing establishments furnish ruled layout sheets to be used in the design of forms completed by machine. These layout sheets can be used to good advantage. All forms completed by typewriter or bookkeeping machine should be designed for tabular spacing whenever practicable.

15. *Tumble design.* If the form is printed on the reverse side, consideration should be given to using "tumble" or "head-to-foot" design. By this is meant printing the top of the form on the reverse opposite the bottom of the form on the face. When placed in a file of papers fastened at the top, a tumble form permits reading the second page simply by turning up the bottom of the first page. However, tumble design should never be used when forms are to be placed in binders or folders with side binding.

16. *Space for pinning or pasting.* If the sheet is to be pinned or pasted to other sheets, space for pinning or pasting should be provided. In many instances the top margin or heading space is sufficient but, if pertinent

As an example of what can be done in the way of standardizing form sizes, here are the five basic sizes — with their outgoing and return envelopes — which now take care of over 50% of the form requirements of one of New York's largest banks . . .



Note that these forms fit properly into the return envelopes as well as the outgoing envelopes.

Figure 100. Standard Size Envelopes

information might be covered up, a special block should be provided with the words "Do not write in this space" printed in the block.

17. *Colored paper.* The use of colored paper should be confined to those instances where it contributes to the efficiency of the operation. Sorting operations can often be speeded up through the use of colored paper. However, it is wise to restrict the number of colors used to a few basic colors, and in each case the shade should be a light one. The greater

the contrast between the background and the filled-in information the greater the legibility.

18. *Is the form to be mailed in an envelope?* Envelopes are manufactured in certain standard sizes in each of the various styles. Therefore, every form mailed in an envelope should be checked to insure that it fits properly into a standard size envelope. (See Figure 100.) Whenever possible window envelopes should be used in place of solid face envelopes. When window envelopes are used, however, it is most important to identify on the form to be enclosed the position in which the address is to appear. This can be done easily by printing four small corner brackets to define the space in which the address is to appear. Nothing other than the address should appear through the window, so it is necessary to have additional space around the address to provide for possible shifting of the form within the envelope.

19. *Can a continuous form be used to advantage?* When an operation involves the completion of a large quantity of the same form by a writing machine, the possibility of using continuous forms is largely determined by the amount of data entered on the form (the less data required the greater the savings), and the quantity of forms completed at one time.

20. *Type faces.* The principal reason for printing a form is to provide a uniform means of recording information. The printing on a form serves as a guide for its completion and as identification of the information on the completed form. The general rules to follow in selecting type faces for form printing are:

- (a) Use simple type faces. As a general rule Gothic type faces are preferable from the standpoint of readability.
- (b) Keep the number of different sizes and styles of type faces used in printing each form to a practical minimum.
- (c) Limit the use of bold type faces and the printing of words or phrases in all upper case to those instances where emphasis is essential.
- (d) Use the same type face throughout the entire form for items of equal importance.

Physical Specifications.—There are certain physical specifications which forms should meet.

1. *Paper.* In order to determine the grades of paper to be used for printing forms, the two basic factors of paper specification, chemical purity, and physical strength must be considered. Chemical purity determines the permanence of the paper while physical strength relates to the amount of handling which the paper will withstand. There is often little or no relationship between these two factors. For example, a kraft envelope has great physical strength but has a comparatively short life. On the

other hand, a sheet of chemically pure bond paper may have comparatively little physical strength, yet will show little signs of deterioration in the first 100 years.

There are a large number of different grades of paper made for various uses. The least expensive grade is newsprint which is made from ground wood pulp. This is not suitable for writing with pen and ink, and is used mainly for newspapers, inexpensive magazines, etc. Because of its limited usefulness, newsprint is rarely used for business forms.

The next least expensive grade is chemical wood pulp paper. Chemical wood pulp papers are made by first reducing the logs to chips and then cooking the chips with chemicals in large metal digesters under high heat and pressure. The cooking process separates the pure fibers or cellulose from the lignin and other impurities. The kind of chemicals used for making the cooking liquor and the degree of heat and length of the cooking determine the purity and also the physical characteristics of the pulp. There are three principal kinds of chemical wood pulp papers, namely, soda pulp, sulphate pulp, and sulphite pulp.

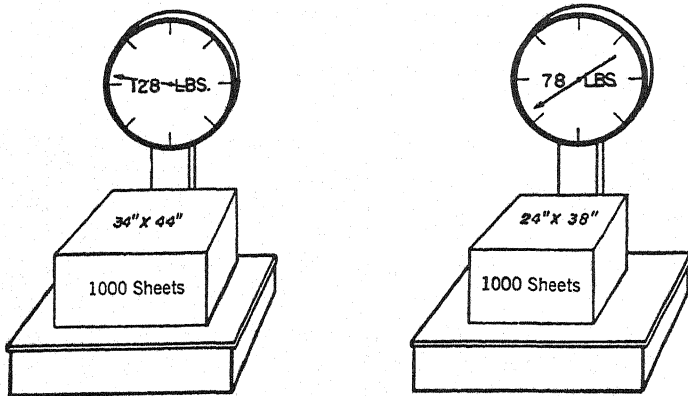
The best grades of paper are made either partially or wholly from rag fibers, and are known as rag content paper. The rag content varies with the different grades from 25% to 100%; the balance of the part-rag paper consists of sulphite pulp.

Closely allied to the important consideration as to the quality of paper is the equally important question of its weight or thickness. For practical purposes the actual thickness is seldom calculated. Instead, the comparative weight, termed "substance," is commonly used. Substance is defined as the weight of one ream (500 sheets) cut to 17 in. x 22 in. Knowing the weight and the size of the paper, it is a simple matter to determine the substance. (See Figure 101.) The most common substance for bond paper (a sized sheet adapted to pen and pencil writing) is 16 lb., the other common substances for bond paper being 13 lb. and 20 lb. Ledger papers are usually made in 24, 28, 32, and 36 lb. substances. The principal difference between bond and ledger paper besides the weight, or substance, is the finish, which is smoother in ledger paper.

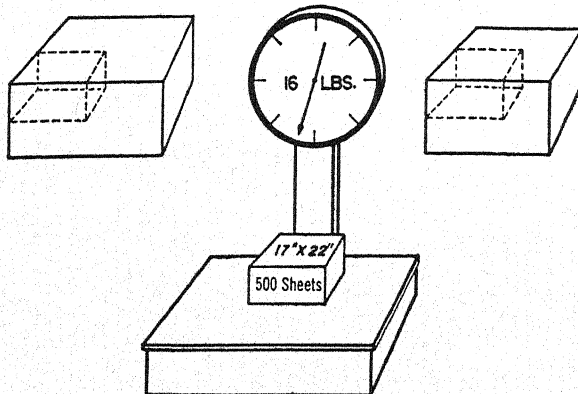
The substance of index bristol stocks is calculated in the same manner as for bond and ledger papers, except that the basic size is $25\frac{1}{2}$ in. x $30\frac{1}{2}$ in. instead of 17 in. x 22 in. The common substances for index bristol stock are 90, 110, 140, 170, and 220.

In the selection of the paper stock for a form the two prime factors to be considered are (1) the retention period and (2) the amount of handling the form will receive. In order to decide upon the paper to be used, it is essential to know the relationship between these two factors for the form in question before it is possible to select the proper grade and weight intelligently. (See Figure 99.) It is, however, necessary for the individual

It is difficult to compare the thicknesses of sheets when weighing papers of different sizes. Below is an illustration of how substance is determined (16 lb.)



By taking 500 sheets of each and cutting them to size 17" X 22", the substance test can be applied.



If both reams weigh the same under these conditions, the papers are the same thickness.

Figure 101. Paper Substance

making the selection to have an understanding of the specifications of the papers from which he is to make his selection.

2. *Size.* Paper is usually purchased by printers in large sheets, the sizes which are usually standard with all paper mills. Since the mill size sheets must be cut to the dimensions of the individual form, the dimensions

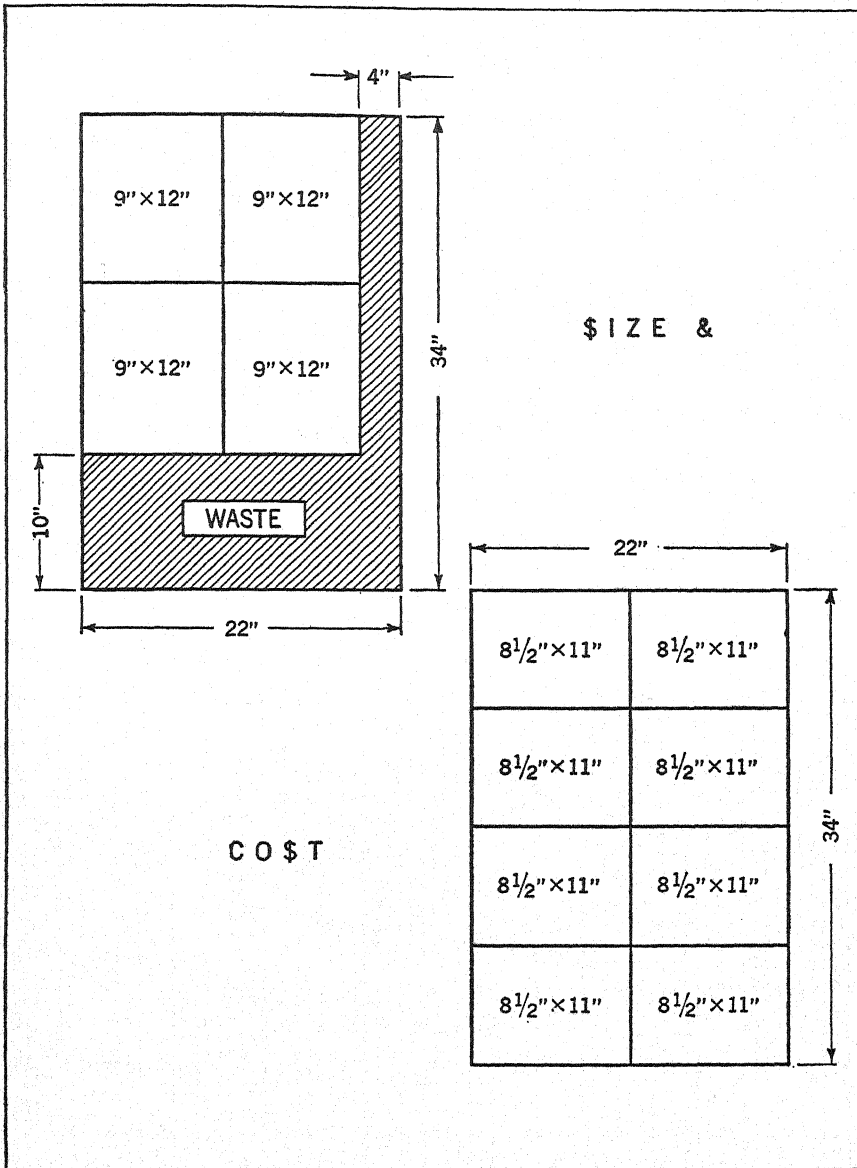
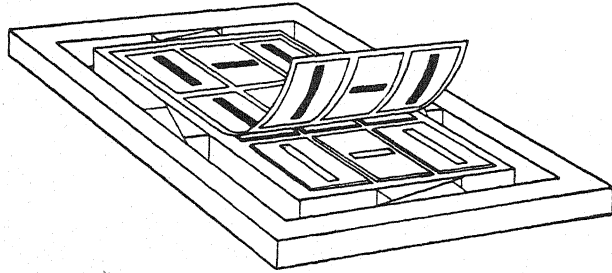


Figure 102. Cutting from Standard Mill Size Sheets

of a form should, wherever practicable, permit cutting without waste from a standard mill size sheet. For example, a standard mill size sheet 22 in. x 34 in. can be cut evenly into eight sheets size 8 1/2 in. x 11 in., whereas a form 9 in. x 11 in. cannot be cut evenly from a standard mill size sheet



Because the number of plates in this lock-up is not divisible by two, there is no way of turning the sheet so that the impressions will be reversed to print back to front and vice versa.

Provided an even number of plates is used, forms can be printed with one impression on the face and a different one on the reverse by simply turning the sheet.

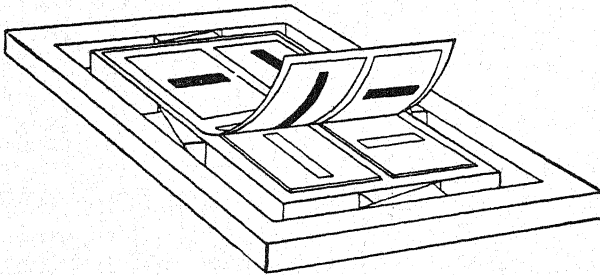


Figure 103. Two-Side Printing

22 in. x 34 in. (See Figure 102.) The designing of forms to cut evenly from standard mill size sheets is an important phase of forms control since it can be the source of many worthwhile savings.

The quantity to be printed also affects the size. If the quantity is large it is usually desirable to print the forms on a large printing press and the form should be designed to cut evenly from a large mill size such as 34 in. x 44 in. If a smaller quantity is to be printed, a smaller standard size mill sheet such as 24 in. x 38 in. will be more desirable since a small quantity will not justify using a large press.

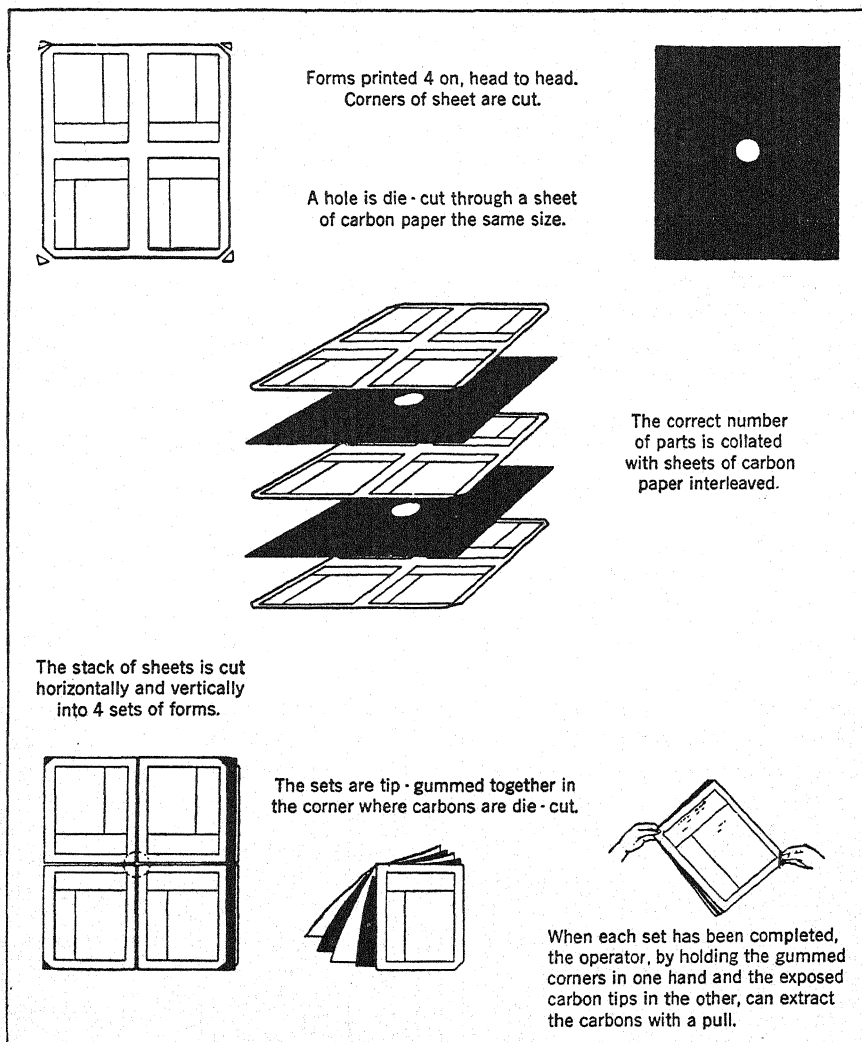


Figure 104. Collating in Multiple

When printing a large quantity of a form, it is often advisable to make up several plates for the form and, by putting them together on the bed of the press, to produce several copies with each impression. This reduces the length of the run by one-half if two plates are used, by two-thirds if three plates are used, etc. If the form is to be printed on both sides, an equal number of face plates and back plates are placed together in the press. After the required sheets are run through the press they are turned over and run through again. This produces the front and back printing. (See

Figure 103.) With this method of printing the number of forms which may be printed on a mill size sheet must be a multiple of two.

Forms with carbon paper interleaved (precollated) should be designed for printing on a sheet size which will permit them to be collated in multiple. For example, consider a three-part form size $8\frac{1}{2}$ in. x $5\frac{1}{2}$ in. If four copies of a form are printed on a sheet of paper 11 in. x 17 in. "head-to-head," i.e., in such a position that two copies are side by side and the two other copies side by side above them but in reversed position, they could be collated in multiples of four, as shown in Figure 104. Carbon paper size 11 in. x 17 in. should be used with a circular hole die-cut in the center of the sheet. The printed sheets and carbon paper, both size 11 in. x 17 in., could then be collated in full sheet size. Since the 11 in. x 17 in. sheet can be handled almost as easily as the $8\frac{1}{2}$ in. x $5\frac{1}{2}$ in. sheet, four sets can be collated in approximately the same time it would take for a single set. When collating is completed, each multiple set can be divided into four individual sets by making two straight cuts through the middle, one horizontally and one vertically. Because of the circular cutout, the carbon paper will not extend to the corner of the forms in one corner, thus facilitating removal of the carbon paper.

3. *Filing requirements.* If the form is to be housed in a filing cabinet or binder, the size of the form should conform to the requirements of the equipment in which the form is to be housed. When index guides are used, the depth of the form should permit the index tabs to be visible. Forms housed in binders should provide a sufficient allowance for the binding margin.

4. *Machine requirements.* Any form which is to be completed by machine must meet the size requirements of the machine. The amount of space required for gripper margin, the maximum writing line of the machine, and the size and spacing of the type should all be carefully considered in designing the form.

5. *Handling requirements.* The manner in which the form is to be handled should be carefully considered in determining its size. A long, narrow form should be avoided when it can be readily replaced by one which is more nearly square. Forms that are stapled, clipped, or otherwise fastened together should be the same size, since it is much easier to handle a case consisting of many sheets of the same size than to handle a group of forms of varying sizes. Forms which are too small are likely to be overlooked or lost; hence should be made larger, when of sufficient importance, even though it requires using more paper. The degree and kind of handling which a form receives will also determine the weight of the paper to be used.

Review of Existing Forms.—One of the primary principles of forms control is to insure keeping forms up to date. Because systems change frequently provision should be made for the periodic review of every form. As a rule, the best way to accomplish this is to have all forms referred to the forms control at the time of each reprinting. The fact that a form met all of the standard physical and functional specifications when last reprinted does not necessarily mean that it should not be reviewed. To insure up-to-date forms, every form should be reviewed at each reprinting and should be checked to make sure that it still conforms to established standards and principles of good forms design.

In reviewing a form at the time of reorder it is important to know not only whether it should be reviewed because of a change in existing requirements, but also whether a contemplated change in procedure may require possible further revision. Therefore, the approval of the persons responsible for the operations in connection with which the form is used should always be secured before ordering a reprint. In addition, a statement as to whether the quantity used is expected to increase, remain the same, or decrease will help to determine the quantity to be ordered.

When one form is revised, it is frequently necessary to make a revision of other related forms. Where the number of different forms used is small, this is a simple matter and can be handled from memory. However, where the number of different forms used is large, it is desirable to provide some more positive method for determining related forms which may require revision. One method of accomplishing this is to make a list of all forms which are used in handling a particular transaction and to refer to this list whenever one of the forms is revised. Another system is to establish a functional forms file in which all of the forms relating to a particular function are filed together.

Procurement of Forms.—In purchasing forms it is desirable to keep the number of suppliers to a minimum. In many cases all forms are purchased through one printer even when it is necessary for him to sublet certain jobs for which his plant is not equipped. The reason for this is that buying all forms from one printer makes that printer familiar with the company's standards and requirements, thus reducing the need for detailed instructions. Established relations with one printer also eliminate clerical expense and permit a large saving in the time required to place orders.

The success of purchasing all forms from a single printer depends upon selecting a reliable printer. Many printers have had considerable experience with printing forms and, once they are acquainted with the standards of the forms program adopted by the buyer, will give full cooperation.

Once satisfied that the printer is reliable, it is usually desirable to negotiate a contract, for this enables the printer to reduce selling expense and organize production, thereby permitting savings, part of which can be passed on to the customer. Whatever the printer may save the customer in printing costs under a contract may not amount to so much as the value of the additional services furnished. When an organization deals with a printer regularly he is in a better position to point out how minor changes in design can reduce printing costs. He can also furnish a scale of contract prices for printing and binding operations so the purchaser can determine actual costs before writing specifications.

When operating under a contract with a printer it is possible to have each order placed on one of three classifications:

1. Job lot—the entire quantity to be printed and delivered at one time.
2. Limited lot—a supply to be printed and carried in stock by the printer but not to be reprinted without instructions.
3. Stock lot—a supply to be printed and carried in stock by the printer at all times, reprints to be made automatically by the printer whenever the supply is reduced to a certain level.

The disadvantages of purchasing all forms from one printer are:

1. With only one source of supply, if the production of the printer is interrupted, it may seriously inconvenience the customer.
2. It eliminates the possible savings to be secured through competitive bidding.

In connection with this subject the reader may be interested in examining Figures 105 to 118, inclusive, which are included in Chapter 17.

Purchase of Printing

Factors in Purchasing.—The purchase of printed material differs from the purchase of other items in three important factors:

1. Almost every piece of printing is different from every other piece of printing and must be purchased as a tailor-made item.
2. There are no generally followed standards governing the planning of most printed material.
3. There are more than 30,000 printers in the United States and they vary tremendously in their methods and abilities of cost finding and pricing.

All three of these factors exert a tremendous influence on the purchasing agent's job of buying printing. His success will be directly proportionate to his ability to do something about them. This, of course, assumes

that he is a capable and efficient purchasing agent aside from the peculiarities inherent in the printing which he must buy.

When the purchasing agent buys a piece of printing he is buying a manufactured product. It is important to keep this in mind. The printer is a manufacturer who takes raw materials (paper and ink), and converts them into a finished product on converting equipment (presses and bindery machines) by certain converting methods (plate making, imposition, etc). This is equally true whether he be a letterpress, an offset, or a gravure printer.

Planning Printing.—The only way to achieve efficiency and economy in any manufacturing process is to build efficiency and economy into the product when it is planned for manufacture. The purchasing agent can never buy with real efficiency unless he has an efficiently planned product to buy. He must, therefore, use all the influence at his command to see that the printing he has to buy is planned intelligently from the printer's manufacturing standpoint.

If the requisitioner insists on making every single piece look different the purchasing agent can remind him that it is possible to plan the vast majority of office forms in standard sizes and to conform with standard manufacturing processes. It is not necessary to sacrifice efficiency and economy just to have individuality or to make a form fit a procedure. Regardless of whose responsibility it is to sponsor a staff control program on printing, the purchasing agent will not discharge his complete responsibility if he does not call to management's attention waste caused by improper planning.

Importance of Specifications.—However, efficient planning alone is not sufficient. The supplier is limited by the manner in which the item is presented to him by the purchasing agent and the information given for him to bid on. The job must be specified in such a manner that each supplier bidding will bid on exactly the same thing. When the purchasing agent goes out for bids he must, if he lays any claim whatever to being efficient in his job, present to the supplier a comprehensive layout or dummy of the item together with complete and accurate specifications for its manufacture.

This does not mean merely the size, the number of pages, the number of colors, and kind of paper stock to be used. It includes every item of information that the printer needs to estimate the cost of the job. On office forms, for instance, such information may include any or all of the following: size, reproduction process, backup, paper, grain direction, color of ink and stock, weight, margins, registration, numbering, scoring, folding, perforating, collating, padding, binding, packaging, and labeling. Without information on any and all of these items that apply to the particular form, the printer cannot estimate intelligently and the buyer is apt to get

back an improperly manufactured job for which he must accept partial if not total responsibility.

Incomplete specifications or the absence of a comprehensive dummy will lead different printers to bid on different conceptions of the job, which is just the same as bidding on different jobs, and the resultant bids will not bear comparison. Competition in the industry will lead most printers to take advantage of every possible factor to make the bid low. When the buyer makes it possible for the printer to misinterpret instructions the buyer must accept at least part of the blame for the results. It is never satisfactory for either the printer or the buyer to have the successful printer come back for more money because of something he did not figure on when he bid.

Relations with Printers.—Inasmuch as the purchasing agent is not dealing with a standardized product much of the solution to the problem can be found in his relationship with the printer. Most printing is wanted on a quick service basis and, in the long run, it is advantageous for the purchaser to create some reason why the printer should want to give good service. Such a reason is not liable to result from continual "chiseling" on the part of the buyer. Much greater economies are to be had through intelligent planning and good specifications than can be had through cheap buying, particularly since cheap buying usually means a cheap product and, in printing, a cheap product often cancels out much of the functional value of the piece. There are many ways in which the printer who has become the victim of low-price buying can deceive his customer if he so desires without the customer ever knowing it.

The printing salesman who tries to make it all very mysterious should be avoided. He probably is merely trying to hold the account by substituting his supposed knowledge for the customer's ignorance. When a salesman comes in with a ready prepared dummy which is to go out for competitive bids, whether on the initial order or on reorders, be sure that the size and make-up of the piece is not peculiar to some piece of equipment that no one else has. On the other hand, when a salesman comes in to present a legitimate and exclusive idea, buy it as such if you want it and do not put his idea-plus-service up against another printer's service-without-an-idea. It is not fair to the first printer.

Select printers whose representatives are also service men, men who can give constructive help in planning and specifying problems. Then, after taking his help, do not make him compete with the "bedroom" printer around the corner who never helps and probably cannot finance the job without being behind in his account with the paper company. On the other hand, don't ignore a printer just because he's small. He may be the very one to give the desired service.

Methods of Buying.—The purchasing agent is more accustomed to buying from job printers on competitive bids than he is in buying from one printer on a contract supply basis. If his volume is quite small and changes must be made frequently in the forms to be purchased, it may be wise for him to use job printers. From the printers' point of view, a job lot order must carry the full cost and expenses involved in producing the order. The majority of these orders call for material that will not cover the printing area of the press and the quantity is so small it cannot be run economically by itself. From the purchaser's point of view, the use of job lot printers provides flexibility, price competition, and the freedom of changing from one to another for any reason desired.

The Contract Plan.—A contract plan includes a review of the prospective customer's printed material by competent printing analysts. These analysts determine, from all available elements, the proper grade and weight of paper that will enable the printed item to function satisfactorily; the size of each item so that it can be cut without waste from a standard sheet of paper; the most economical manufacturing processes; the most economical quantities to produce; and the quantity that the printer should carry in stock to guarantee an adequate supply in the possession of the customer at all times. This plan enables the printer to sell at a low price because it provides for the maximum utilization of equipment and materials by combining orders for more than one customer and the elimination of many selling operations. Furthermore, it reduces the buying and accounting expenses of the customer, because there will be a reduction in time interviewing printing salesmen, fewer purchase orders written, and fewer bills to check and pay.

A Case Study of Contract Printing.—The plan of contracting for printing has many advantages over competitive and private printing, as the following case illustrates:

In 1939, The Blank Trust Company was faced with a problem. It had its own printing plant which produced most of its printed forms on antiquated letterpress equipment. Quality and service were mediocre and costs were mounting. Should the bank completely reorganize its Printing Department, purchase modern equipment and attempt to put it on an economical basis, or should it go elsewhere and obtain our printing from duly qualified experts?

We decided to go elsewhere. Our costs studies revealed that we could not afford to do otherwise. We were bankers and not printers, and we were no better qualified to be in the printing business than the average print shop is to be in the banking business. We discovered among other things, that he who does his own work, pays for his own mistakes. Furthermore, where the profit incentive is lacking, as it is when the printing function becomes a service department for a larger organization, the incentive to keep down costs and to maintain quality is also lacking.

It should not be implied that the private plant did not have its advocates. They were few in number but articulate. In the end, they clung to two arguments which have been used extensively since private plants first became established. They emphasized the advantages, first, of quick service, and secondly, of secrecy.

These so-called "advantages" were soon found to be more apparent than real. The need for rush deliveries was due chiefly to an antiquated requisitioning system, and a complete revamping of that system virtually eliminated the need for rush orders. As to secrecy, we have never experienced the embarrassment of a "leak" in dealing with a reputable firm.

Having decided on the abolition of our print shop, the question then arose as to how we would go about finding the type of printer whose organization and experience were best suited to our needs.

We started in the usual manner by selecting 100 of our longest run forms and 100 of our shortest run forms, and obtaining competitive bids on the entire lot. We went to two types of printers—the regular job-lot house and the contract printer.

We studied first the more usual method of obtaining printing through the use of competitive bids among five or ten outstanding printing establishments. As a result of our contacts, two significant facts became apparent—the first was that the cost of obtaining competitive bids each time a form or series of forms was to be printed was much more expensive both for the printer and for us than the use of the contract bidding system. The second point, a corollary to the first, was that we were still partly in the printing business because it was necessary for us to maintain a staff to prepare gang runs and make studies of paper requirements; in short, to hand the problem to the competitive printer in a predigested form in order to realize maximum economies. Our reaction to operating on that basis was confirmed by studies made of the methods employed by other banking institutions. In one case, the manager of the Purchasing Department boasted of a substantial annual saving in the cost of printed forms by the competitive system, but later was forced to admit that that saving was more than offset by the cost of maintaining the organization necessary to prepare the bids and store and distribute the forms after they had been received.

Our interest having been aroused in the contract printing setup, primarily because of the initial lower cost of handling the business, we made an exhaustive study of precisely what the contract bidder had to offer and how he could offer it on such attractive terms. Perhaps the advantages will be clearer if we outline briefly the basis of our contract printing arrangement.

The cornerstone of our contract is the agreement of The Blank Trust Company to maintain a minimum authorized stock of forms to be printed by the contract printers. In order to fit in efficiently with this arrangement, it was naturally necessary for us to conform to the printers' standards in three basic respects.

1. Standard sizes
2. Standard qualities of paper
3. Standard quantities to be ordered

Once our requirements were brought in line with these three principles, the problem became comparatively simple.

The details of the reorganization in the form planning of the The Blank Trust Company have been told elsewhere. The point to be borne in mind is, however, that that reorganization was definitely integrated with the requirements of the printer selected to do the work.

One other necessary tie-in has already been mentioned. We had to revise our requisitioning system in such a way that rush orders could be eliminated and deliveries could be made expeditiously in the manner requested by us. As a result of the co-ordination brought about through the reorganization of the form planning and requisitioning systems, the contract printer was then able to perform the following services which were unobtainable through the competitive bidding system.

1. All forms were stored by the printer, who maintained the inventories and automatically rebuilt stock as required. If we cancelled a form which became obsolete, we were only liable for the balance on hand at the time of cancellation. In most cases, these forms could be used.

2. The printer assumed the responsibility of efficient manufacture by the proper ganging of our forms with those of other customers on the predetermined standard grades of paper, thus eliminating any preliminary planning on each re-order.

3. The printer delivered our forms by departments and even arranged them according to the floors on which the departments were located, thus expediting the transit of packages to their destination

4. The printer billed us by departments and cooperated with our accounting system, so that the problem of expense distribution was reduced to a minimum. As a result of this system, we were completely out of the printing business.

The question naturally arises as to how the contract printer can offer so much at so reasonable a cost. The answer is obvious upon reflection. In the first place, the printer standardizes on a few major types of paper among all of his customers. Secondly, under the Authorized Stock Plan, he is able to plan his printing runs far into the future and keep a great majority of his presses in continuous operation. Thirdly, he has no continuous selling expense and the delays attendant thereto after the initial contract has been signed.

It should be added that he has a minimum composition expense after the initial runs of the forms in question, owing to the fact that most of them are run on offset presses, and his only cost is the re-exposing of the zinc plate. The negatives prepared for the initial run are stored away and used time and again until the composition of the form is changed. This system also results in a superior quality of work.

In this brief discussion we are not discriminating against the job-lot printer who offers an important service to all commercial establishments. For one thing, we make extensive use of job-lot printers ourselves for a few specialized forms and for certain non-recurring rush items which would be impracticable to establish on a contractual basis. In the second place, we do not belittle the capacities of the average printer but we do advocate the principle of buying

printing on a contract basis. Any printing concern can operate on that basis, providing it has a broad enough scope and a great enough diversity of equipment. In the third place, the contract idea which we have found so successful finds its greatest economies in a large institution rather than in a small one. The principle of obtaining competitive bids will probably always be an effective means of satisfying the printing requirements of the great majority of small businesses.

As far as our experience is concerned, however, for the six years during which our contract has been in operation, we believe it is one of the most satisfactory business relationships which we have. We are so convinced of the merits of the contract arrangement that we have established it for the purchase of office supplies as well as for printing forms. Perhaps a word of caution would be in order at the end of this paper. It *does* make a difference with whom you do business. Putting all your eggs in one basket can be disastrous if that basket is a poor one. We believe, however, that if a reputable printer can be found who knows his business, the contract arrangement is preferable for most large concerns. It certainly has been for us.

Reordering Forms.—The reorder of printing, usually office forms, can be economical or wasteful depending on how the reorders are handled. If every form is allowed to be completely used up and then ordered in a rush, much wasteful buying will result. If, on the other hand, an adequate stock control is maintained so that reorders can be anticipated, it will be possible to gang the orders with considerable additional economy. A single order for 5,000 each of four forms that can be printed all at one time will bring a surprising saving over four orders for 5,000 each of four forms at different times. If a form is to be ordered more than once it is often advisable to obtain bids on both the original run and on reruns to know just how the composition or plate costs will be paid for.

Purchasing Printing vs. Owning Company Printing Plant.—A company-owned printing plant may vary anywhere from a single, simple office machine to several large complex printing presses with their complement of equipment to produce, completely, high-grade printed material. A company seldom establishes a complete printing plant as part of its regular business when the latter is foreign to printing. The company printing plant is often a gradual growth starting with an unusual condition, for example, a printing press is installed to produce labels, wrappers, or containers for the regular product. When business declines, other printed material is produced to keep the press busy. When business increases again, additional equipment is bought.

Sometimes "rush" printed material becomes the rule instead of the exception in an organization and a printing press is installed to take care of these rush jobs. The flow of rush work will fluctuate so other work is solicited to fill in when the press is not busy. When the load becomes too heavy for one press a second unit is bought.

Frequently an executive buys a machine on the basis that a stenographer can prepare the copy and an office boy can run the machine, both in their spare time. Initially that may be true, but as the volume of work increases the operation will require full-time operators, additional space, a larger investment, direct supervision, and general supervision of an executive whose technical training may be entirely foreign to printing.

COST CALCULATIONS.—Many executives believe that the cost of printed material produced by their company printing plant is lower than the price quoted by an outside printer because no sales expenses are involved and no profit is required. The statement is true only to the extent of the omission of the two items from cost; it does not follow that the final cost is lower. Sales expense and profit may have a direct bearing upon reduction of cost.

The most common incentive of the owner of a business is profit. To gain and maintain a profit it is essential that the operations of the business be conducted efficiently. The greatest efficiency can be obtained from effective management which operates at a low cost and provides a good quality product at a price that will attract more customers. The successful outside printer who makes a satisfactory profit is in a position to expand his facilities to accommodate the increased volume of business resulting from a good quality product sold at attractive prices.

The manager of the company printing plant may be as efficient as the outside printer but he is severely handicapped because his volume is limited, in most cases, to the printing requirements of his company. The opportunities for greater efficiency, through more effective use of machinery and more economical utilization of materials and supplies which should accompany increased volume, are not available to him. Under the above conditions the profit incentive contributes definitely to a lower price.

In every manufacturing organization there are fixed items of overhead which must be absorbed in the cost of the product. The amount absorbed in each unit of product becomes less as the quantity of units increase. The sales organization is expected to increase the volume of units, therefore an increase in volume contributes to lower prices when the sales cost is less than the savings which accrue from large volume operations.

It is not uncommon to find an error in a piece of printed material which causes its rejection. The outside printer recognizes the loss as a reduction of profit, but the company printing plant must absorb it in cost of operation. There are many other sources of waste in a printing plant, some of which are unavoidable. The amount involved is spread over many customers by the outside printer while the company printing plant must absorb the total amount.

The following elements of cost are often not assessed fairly, and sometimes they are ignored completely, in company price calculations:

1. Rent, light, heat, and power
2. Depreciation
3. Interest on investment
4. General and cost accounting
5. Purchasing and payroll expenses
6. Proper share of administrative expense
7. Supervision—all executives involved in addition to that of the direct supervisor
8. Waste in materials, supplies, and finished product

When calculating the price of company printing plant product to be used for comparison with the price offered by an outside printer for the same product, the unit cost must include all elements of cost applicable to the particular job if it is to be fair to the company.

When the requirements of a successful printing plant are filled by a company printing plant, an unbiased periodic review of its operations should be made to determine whether or not the time devoted to it by executives and the money invested in production facilities and inventory could be more profitably utilized in the regular business of the company. To make an unbiased comparison the reviewers should consider the advantages of doing business with a reputable printing organization equipped to handle their requirements under a contract plan. The savings of such a plan within their organization should be developed and given proper weight in their conclusions.

In the final analysis, efficient management can be obtained only through the services of men who know the principles of management and know how to apply them to all phases of the printing industry. The successful plant needs management that understands the intricate problems relating to product and personnel which come up for solution daily. The results expected from a successful printing plant are reflected in a high-grade product, low operating cost, high earnings for all employees, and a reasonable profit for the owners of the plant.

CHAPTER 17

DEVELOPING AND RECORDING— OFFICE METHODS AND PROCEDURES

Functions and Organization of Methods Work

Need for Constant Improvement and Adjustment.—There is constant need for seeking improvement in office operations. Conditions are ever-changing and improvisation is all too frequently the basis for adjusting office systems to these changes. Modern developments in office equipment and supplies offer manifold advantages of increased accuracy and output and lowered unit costs. Because of the rapidity of these developments and other impacts which make change necessary, continuous study and adjustment are essential parts of office operation. An increasing number of business firms recognize this need as evidenced by the marked trend in recent years toward the assignment of responsibility to a major executive for the improvement of office methods and procedures. Specialists are being employed to function in a staff capacity for the single purpose of keeping the office procedures abreast of changing business conditions and modern developments. These activities are variously named and sometimes are combined with other responsibilities such as personnel, purchasing, etc. In general it is important that the methods and procedures group be kept as free as possible from routine assignments which tend to stifle and prevent free exercise of the creative and research approach. In order to obtain the maximum of results, the group must not be loaded with so much operating responsibility that it cannot properly perform its investigative and development functions. This is the very reason that operating or line executives find it difficult to keep procedures up to date.

DEFINITION OF METHODS WORK.—Methods work has been variously defined as “seeking the one best way at the time the process or procedure is under study” or “eliminating, simplifying, and standardizing the work to be done.” Methods analysts agree that the single, most important word in the language is “Why?” It may be said that methods work is the thoughtful and comprehensive analysis of an office operation for the purpose of developing a way to perform it more effectively—always providing there is a need for it and it cannot be eliminated entirely. All offices need it—both the small and the large. There is no definite criterion as to how much

is right for any one organization. It has been said however that an office having only as few as twenty clerks can justify a full-time methods analyst.

Basic Approaches to Improvement.—There are three basic approaches to the improvement of office methods and procedures:

1. Employment of outside consultant
2. Establishment of a methods staff within the organization
3. Through the efforts of operating department heads and supervisors

OUTSIDE CONSULTANT.—The employment of outside consultants is considered by many to offer the best means of modernizing and improving office procedures. They bring to the task a vast amount of previous experience as well as a fresh viewpoint. Reilley says:¹ "There are a great many 'sacred cows' that people in an organization can't do much about—a lot of things that just can't be handled by the people who have to go on living with other people in the organization." On the other hand these outside consultants cannot possibly be as close to the details of operations as those in the organization. Many feel that a methods staff within the organization presents the better approach to the problem. Even if a consultant is used, someone must carry on after he leaves. Not all problems will stand the cost of outside services.

INTERNAL METHODS STAFF.—An internal methods staff giving full time to a single business is in a better position to properly diagnose its procedural needs. Hardwick contends that:² "As between the periodic employment of outside firms of consultants for the conduct of methods and procedure surveys and the establishment of a planning department as a permanent part of the office organization the latter is unquestionably to be preferred since, thereby, continuity of effort and staff cooperation can better be secured and work interruption and staff irritations avoided."

Other companies have found that a combination of the two plans best suits their requirements. Certain of the more important methods studies can be profitably guided by the specialist brought in from outside. The facilities of the internal staff can be used to accumulate the necessary information about the problem, and the talent and experience of the consultant assures a beneficial solution. Results are thus more rapidly obtained. The internal staff then assumes the responsibility for proper training of the operators and installation of the new method.

USE OF DEPARTMENT HEADS AND SUPERVISORS.—The third approach is the utilization of the company's own department heads and supervisors to

¹ E. W. Reilley, "The Control Staff as an Aid to Management," *AMA Office Management Series*, No. 107.

² Gordon A. Hardwick, "The Organization and Operation of a Planning Department," *NOMA Forum*, Vol. XV, No. 4, p. 17.

develop better methods for doing their work. Sutton takes this position with regard to the office manager when he states:³ "With his background and general knowledge of the set-up, he and his supervisors should be able to do the job without giving an unreasonable amount of his time to the undertaking. For this plan to succeed it is essential that the office manager instill in his supervisory staff an enthusiastic attitude toward work simplification. Too often supervisors are content to accept the existing routine as being entirely adequate and yet probably they could not give a good reason for doing certain phases of the work the way it is being done. They must be encouraged to share the responsibility with the office manager for in many respects they are in the best position to observe weaknesses in the existing procedure and wastes of effort by the personnel." Others maintain that line supervisors are too close to the problems and have too many operating responsibilities and harassments to get the detached, objective attitude so necessary in the application of the research approach. Bruce maintains:⁴ "A proper knowledge of this field requires years of study. The clerks directly on the job haven't the time nor the perspective to be entrusted with this responsibility. The line supervisors likewise often haven't the time to keep up with developments, and they usually lack the special preliminary training which effective methods work requires. Thus by process of elimination, we arrive at the suggestion that a staff position should be established for the exclusive purpose of studying and improving office methods."

In further support of the conclusion that an internal staff presents the best answer, Hardwick says:⁵ "Neither part time executive attention nor even full time clerical treatment can be expected to insure the application of scientific independent thought to the office problems crying for solution and requiring the consideration of persons who are company minded, rather than departmentally minded, and who are accordingly able to get the overall picture of the office so necessary for this type of work."

Objective of a Methods Organization.—The objectives of any methods program will encompass one or more of the following:

1. Reduced costs
2. Improved record-keeping service
3. Adequate control of operations
4. Improved working conditions

REDUCED COSTS.—There are few if any offices today in which cost reduction is not an important factor. This does not necessarily imply a

³ George H. Sutton, "Work Simplification," *NOMA Forum*, Vol. XVIII, No. 5, p. 16.

⁴ Robert Bruce, "The Technique of Improving Office Methods," *AMA Office Management Series*, No. 86, p. 28.

⁵ Gordon A. Hardwick, "The Organization and Operation of a Planning Department," *NOMA Forum*, Vol. XV, No. 4, p. 16.

reduction in personnel but rather the ability to take on the work arising out of the ever-increasing need by management for information and control data. Appropriate precautions must be taken to prevent the expenditure of energy in the maintenance of records which have little or no use value or which will not be used. This condition is too frequently found in offices.

IMPROVED RECORD-KEEPING SERVICE.—There are many records without which the business cannot proceed. However, to make fullest use of these they must be available on time and be completely accurate. The value of many necessary reports is in considerable question through lateness of issuance and inaccuracies which they contain. Methods work can make such records a living tool of the management by simplifying their preparation and improving the accuracy of their contents.

ADEQUATE CONTROL OF OPERATIONS.—Many situations in connection with our business operations have little if any control to prevent inaccuracy and even fraud. Transactions occur daily over which doubtful scrutiny is exercised. Application of modern accounting principles of internal control should always be a goal in the development of any new method.

IMPROVED WORKING CONDITIONS.—In our society of today we are constantly striving to ease the burden of the worker. Production goals are set ever higher but modern ingenuity has made possible such increases without instituting "speed up" campaigns and other such onerous devices. Improvements in the physical factors surrounding the work, such as reduction of noise, better light, heat, and ventilation, more comfortable furniture, etc., have made constructive contributions to their end. Methods men have always taken part in such developments and will continue to pioneer in them.

General and Specific Functions.—In the proper performance of its work, a methods unit may study problems in various levels of the company's operations. The general functions of methods activities may be classified in the following three groups:

1. Broad management planning and organization
2. Procedure analysis and improvement
3. Work simplification on the operational level

MANAGEMENT PLANNING AND ORGANIZATION.—Some assignments will result in uncovering important facts leading to management decisions of a policy or organizational nature. Such fundamental research can have a far-reaching effect upon the company's operations and often will produce such valuable results as to offset the entire cost of the department for years to come. Naturally these are infrequent and require methods talent of a superior quality. Nevertheless, in training and supporting a methods staff, management is developing an important potential for good along these lines.

PROCEDURE ANALYSIS AND IMPROVEMENT.—By far the most numerous tasks of the unit will consist of procedure surveys and analysis. These may deal with all procedures of a given department or with a specific procedure as it affects many departments. In this area of the work the greatest opportunity for savings and efficiency will be found. Elimination and simplification can be applied to the fullest.

WORK SIMPLIFICATION ON OPERATION LEVEL.—Work simplification directed at the level of the individual operator can do much to improve the output of individual clerks and is undoubtedly a part of any well-organized methods program. However, the basic organization and procedures of any office usually offer so much more fertile opportunity for improvement that they should be given primary attention. Roth says: ⁶ “While we have been engaged on surveys of detailed clerical routines in connection with large volume operations and in those studies have had occasion to make some use of stop watch tests we do not presume to be time and motion study engineers. Nor have we felt the need of such an approach as yet; our surveys have usually covered much broader problems and until we have gone a lot further toward perfection in organizational arrangement, accounting control and elimination of unnecessary records and activities, we shall probably not engage in any detailed analysis of finger motions.”

The specific functions of a methods or planning group may be stated as follows:

1. Selection and assignment of projects
2. Survey and investigation
3. Development of improvements, standards, etc.
4. Submission of proposal and securing approval
5. Issuance of written procedure instructions
6. Assistance in installation phases
7. Follow-up of installed procedures
8. Maintenance of adequate records of methods work completed and in process
9. Submission of periodic reports of progress and results obtained

SELECTION OF PROJECTS.—All work of the methods department must be concentrated on legitimate “projects” which have been assigned by the executive in charge, selected by the methods staff, or requested by the operating departments. Requests for work from all sources should be carefully reviewed, and the need and potential for improvement established before placing the project on the schedule. Careful selection of projects cannot be too highly emphasized for best results of the work. Poor selection cannot

⁶ H. J. Roth, “Methods and Procedures Organization,” *AMA Office Management Series*, No. 103, p. 5.

fail to result in much futile striving which produces nothing of real value. Many criticisms of methods work are caused by dilution of effort from attempting to "improve everything."

SURVEY AND INVESTIGATION.—It should hardly be necessary to emphasize care and thoroughness in studying the problem. Define its objectives. Make a preliminary analysis of its scope and block out the principal avenues of approach. Then get complete detailed facts concerning it. After the facts are accumulated classify and analyze them to develop general principles affecting the solution of the problem. Apply the knowledge and experiences gained in performance of office work to these principles or controlling factors, and develop the improvements.

SUBMISSION OF PROPOSALS.—It is usually unnecessary and often undesirable to completely develop the detailed routine before submitting the recommendations. It would be preferable to block out the outline of the procedures intended and submit the proposal based on broad fundamentals and in outline form only. If the general principles are not approved, it will be unnecessary to spend time on detailed development. It is usually advisable, however, to test check the more important phases of the procedure before its submission.

Bruce says: ⁷ "Never work up elaborate detailed instructions and try to sell them, all cut and dried. The executive won't wade through them. Besides the executive will want to present some ideas and suggestions of his own. The methods supervisor should confine his presentation to the fundamentals. After basic principles are agreed upon, then proceed to the next step and work up the detailed instructions."

PROCEDURE INSTRUCTIONS AND INSTALLATION.—After approval, develop the detailed procedure instructions and issue them in writing to all those affected. Assist in the selection and training of the operators and other phases of the installation. Get together with the supervisors of all departments affected and plan and schedule the cut-over. Care in selection of the most appropriate time and consideration of obstacles which may arise in the transition from the old to the new method will do much to implement the installation. Be on hand to meet and settle those unexpected problems which always arise. On this point Bruce states: ⁸ "I am out of patience with the methods man who drops his plans in your lap, then vanishes when the test comes. Some of the hardest work must be done during the first month of operation. That is when quick decisions must be made to meet unforeseen circumstances and to insure that the job gets done on the due date. The

⁷ Robert Bruce, "The Technique of Improving Office Methods," *AMA Office Management Series*, No. 86, p. 41.

⁸ *Ibid.*

unskilled methods man may get panicky at this point. The true expert will prove his worth by offering a steadying hand at this critical time."

All during the installation period, it will be necessary to polish and patch up details of the procedure and remove the "bugs." This necessity cannot be escaped and should in no way put the methods man on the defensive. If the plan is sound in principle and has fundamental merit, these detailed irritations can be worked out. Many are caused by situations which could not have been foreseen at the time of the survey.

FOLLOW-UP.—When the installation is running smoothly—usually one to two months after cut-over—a complete audit of the procedure should be made. All written instructions should be corrected and issued as final standard practice. Claims originally made in the proposal should be checked and those concerned advised of results obtained. The project may now be considered completed except that in many large installations a second follow-up check after six months' operation is advisable. This will clear up any additional questions or problems which may have arisen and convince the operating supervisor that the methods man is standing behind his work and wishes to make sure it is really doing the job.

REPORTS OF PROGRESS.—At periodic intervals it is necessary and of vital importance for the continuing progress of the methods department to make reports of its accomplishments. In the case of certain very broad fundamental projects, such reports should be made on a project basis. Findings to date, general conclusions and principles arrived at, next steps, etc. are all of interest to the executives in charge. Partial recommendations may sometimes be made in such reports. Certain specific problems may lend themselves to immediate solution in advance of the comprehensive answer to the entire procedure. Continuity of executive interest will be facilitated in this manner.

Annual or semi-annual reports are also of value in selling the methods unit and maintaining interest in its work. These should list the projects completed during the period and briefly describe the work done, results achieved, savings made, etc. Summaries of total savings on all projects—both tangible and intangible—as related to the cost of operation of the methods department will clearly indicate the value of the methods program. Projects in process may also be listed on such reports and work done and expected results indicated briefly. While in most phases of human endeavor it is necessary to sell the value of a task, this is probably even more true in methods work. The methods man must constantly sell himself, his department, and his work. Unquestionably this selling must be of a purely factual nature but it is of the utmost importance that the facts be brought before the right people. This point is very important and must not be overlooked.

Organization of a Methods Unit.—The organization of a methods unit will differ somewhat depending upon the size of the company and the nature of its operations. There are some who may feel that a small concern cannot afford even one full-time individual assigned to this work. However, this view is gradually disappearing. Bruce says:⁹ "I contend that in any office which contains as many as twenty clerks doing a variety of work, a staff man devoting full time to the study of methods can probably be justified. I have never yet seen a small office which lacked local methods supervision, in which a saving of two or three clerks could not easily be made."

LARGE CONCERNS.—In the larger offices one man will not be able to effectively cover the ground and realize the potential savings to be made. It will be necessary to supplement his efforts by one or more staff assistants and clerks depending on the size of the business.

The man selected to lead the program of methods work should have a number of characteristics which specially fit him for the task. Bowser states:¹⁰ "The methods man was born, rather than developed. He was gifted with certain imagination or inventive ability which his superior recognized as applicable to office methods. So he was turned loose on the office problems and with varying degrees of success developed a technique of his own." To this Roth adds:¹¹ "The methods man, first of all must be enthusiastic about methods work. He must have initiative, creative ability, tact, and an analytical mind to enable him to separate the wheat from the chaff in the information he gathers. In addition it will do no harm if the methods man has a certain measure of sales ability because obviously, not all ideas for methods improvements will be welcomed with open arms by the departments with which he will deal." He further states that "In addition—the methods man should have certain basic training. If possible, he should be a college graduate having majored in accounting; and in some companies it may be desirable to have a man with an engineering as well as an accounting background." In the large concern certain of these qualifications may be divided among individuals on the methods staff. Specialists may be employed to handle phases of the work or various types of projects. The following is listed as the general make-up of a methods staff:

1. Senior analysts
2. Junior analysts
3. Procedure designers
4. Specialists (accountants, equipment and machine men, forms designers, draftsmen, report and procedure editors, and stenographers)

⁹ Robert Bruce, "The Technique of Improving Office Methods," *AMA Office Management Series*, No. 86, p. 28.

¹⁰ Wayland S. Bowser, "The Why and How of Methods Improvement," *NOMA Conf. Proc.*, 1943, p. 59.

¹¹ H. J. Roth, "Methods and Procedures Organization," *AMA Office Management Series*, No. 103, p. 7.

In the large company, the methods department may contain one or more of each of the above jobs.

SMALL CONCERNS.—Obviously, in smaller units the skills of these jobs must be combined in fewer individuals until in the office of twenty clerks previously mentioned all of them may be combined in a single individual. In fact, in offices of less than twenty a part of the office manager's time will be spent on such tasks and he should be equipped to handle them. It is essential that some degree of methods work be carried on wherever record keeping is performed.

The procedure analyst may develop his own recommendations and follow the problem through the proposal, installation, and follow-up stages. Certain advantages of continuity are gained in this manner. However, if specialists in machines and mechanization are assigned to this type of task, accounting specialists to accounting procedures, etc., more satisfactory results will be obtained.

Authority and Responsibility.—What should be the authority and responsibility of the methods staff? It has been said that methods men have only the authority of their ideas. Given sound ideas they will not lack for authority to apply them. Roth says:¹² "The successful launching of methods work in any organization will in my opinion depend entirely upon the extent to which the idea is backed by the top management. Unless such an undertaking has the approval of the higher officers of the company, it will be very difficult for it to grow and assume the position which it should. It must be established as a staff function under the president, controller, or other top-ranking official. Its establishment must not stop there; having once been recognized by top management it should also be recognized by the company as a whole, through the issuance of company regulations or instructions which establish the scope of the work to be done and define its authority."

If the unit is not large, it may be difficult to cover all the ground. It is doubtful if any company can afford to have absolute control by a staff unit of all of its office methods. A better plan is to select major tasks that represent the greatest potential for improvement and meanwhile to encourage operating supervisors to improve their own procedures.

If we give the staff unit any recurring tasks or the authority and responsibility to approve all methods changes, it may be so saddled with routine that it cannot concentrate on and finish its assigned tasks. There is always the danger that the unit will become an editing staff for the standard practices of others and will be unable to do any constructive work

¹² H. J. Roth, "Methods and Procedures Organization," *AMA Office Management Series*, No. 103, p. 7.

of its own. It is better to operate on the exception principle and "sell" rather than "tell." Sell the proposals as high as possible though, and get implied rather than direct authority from management.

Relations with Operating Organization.—It is axiomatic that a poor machinist can wreck any machine. It is also true that the office clerk or supervisor can make any office procedure fail—through lack of training, knowledge, interest, etc. Therefore, although top management support is stressed, it should not relieve the methods man of convincing operating supervisors of the soundness of his proposals. It may take somewhat longer but the end result will be more satisfactory.

Thus, it seems best to limit the authority of the methods unit to that of securing information, developing and selling improvements, issuing written instructions, and assisting in the installation of these improved methods. In this capacity the staff works much like an outside consulting organization but goes further and carries a continuing responsibility for the success of the recommendations. At the same time the authority of the operating department heads is in no wise infringed upon. They are enabled to do a better and cheaper job in operating their departments. When once this has been demonstrated, these department heads are usually eager to make additional use of this "free" methods service furnished them by the management. Rowland says:¹³ "Once you get him (the line supervisor) thinking in terms of cost and production, it's but a short step for him to realize that the enhancement of his own personality—his value to the company, can be best and most easily attained by developing and improving his record by welcoming the assistance which a planning staff might render his organization."

Cost and Results of Methods Work.—How much can a company afford to spend on a methods unit? This depends on how much work there is for it to do and how much savings potential exists. Bowser has said:¹⁴ "The following factors should be kept in mind:

1. The size of the office organization
2. Whether methods are acknowledged to be inefficient or of average efficiency or are considered fairly well modernized
3. The speed with which complete coverage is expected

"My answer to the question concerning the amount to be spent is based on the assumption that you have fairly efficient methods and are not faced with an emergency rebuilding of your system. Year in and year out you

¹³ Frank L. Rowland, "A Subjective and Objective Appraisal of Office Management," *NOMA Forum*, April, 1939, p. 10.

¹⁴ Wayland S. Bowser, "The Why and How of Methods Improvement," *NOMA Conf. Proc.*, 1943, p. 60.

can afford to spend an amount equal to 2% of your office salaries in a constant search for better methods." While it has already been stated that the small office of as few as twenty clerks can afford the full time services of one methods man, this ratio should increase with the size of the office. In one organization the ratio is one methods man for each 200 office employees. Depending upon the salaries involved, this would generally not exceed 2%. In a survey conducted by the National Office Management Association Research Committee and summarized by L. H. VanNess, the following table was developed:

No. Persons on Method Staff	No. Home Office Clerical Employees
3 *	4,200
11	650
12	600
41	1,200

* This company used 20 part-time employees in the department as need arose.

The work of the planning division is seldom finished. Usually before one assignment is completed, several others must be scheduled. Moreover, completed procedures must be reviewed at frequent intervals.

In the NOMA Research Survey summarized by Van Ness, the average ratio of savings to cost for a three year period was stated as "3 to 1" by one company and "better than 3 to 1" by another. This seems a worthwhile effort for as Rowland aptly brings out:¹⁵ "The value of an idea which represents accumulative savings is really the projected savings over the period of time over which the saving becomes effective."

Furthermore, it must not be overlooked that savings in operating costs make direct contributions to the profit of the enterprise and such savings if compared with the volume of sales necessary to make an equivalent profit contribution loom large indeed. In addition to the tangible savings obtained many intangible advantages should also result from the well conceived and executed methods program. Controls will exist where none existed before. Work will be done more smoothly, effectively, and on time. Additional volume will be absorbed without increases in staff. The monetary value of such improvements is difficult to measure but they are nevertheless important and attainable.

At this point it is suggested that the reader examine Figures 105 to 118, inclusive, which are included in this chapter.

Work Simplification

Characteristics of a Work Simplification Program.—A work simplification program is of necessity a target program. It is directed entirely

¹⁵ Frank L. Rowland, "A Subjective and Objective Appraisal of Office Management," *NOMA Forum*, April, 1939, p. 10.

toward the work organization and production phase of the total office management job. Every phase of the program should be aimed at the improvement and simplification of work distribution, over-all procedures, methods and operations on individual jobs, forms, and records, and layout.

The term "work simplification program" as used in this discussion will be understood to mean an organized, critical review and inspection of clerical operations with the aim of eliminating all non-essential work and improving the manner in which all essential work is performed. There is a need, however, to understand the limitations of work simplification programs. Frequently, work simplification programs develop into areas that are more properly within the province of broad organizational or procedural studies. It is suggested that the objectives of a work simplification program be clearly understood to have very definite limitations prior to its inception. Whenever indications of more far-reaching improvements are obtained during the course of a work simplification program, it would seem desirable merely to make notations of the possible improvements for future use in a separate study.

It should be realized that all office organizations, large or small, may benefit from work simplification studies. It is hard to determine which of the two would receive the greater benefit, for while the larger organization undoubtedly receives greater returns in terms of money savings, the effect of proportionate savings to a small office organization is probably even more beneficial. The size of the office organization involved will of necessity determine the nature of the staff activity charged with its development and maintenance. In a large company there will be at least one full-time planning and procedures man, or office manager, who will devote the major portion of his time to general planning and coordination of work, including work simplification. If the office organization is extremely large, he may have one or more staff assistants who will be associated with him in this work. The small organization may have the duties of functional office manager or planning man assigned as a part-time duty to one of its executives. In either case, whenever a work simplification program is undertaken, it should be contemplated that a continuous follow-up and reappraisal of the office operations will be undertaken at regular intervals.

EXECUTIVE AND SUPERVISORY COOPERATION.—The line executive or supervisor is the one person who is constantly face to face with the realities of getting out the work. He is most familiar with existing difficulties from firsthand knowledge, and is in the best position to know those phases of his operation most subject to improvement.

COMPETENT STAFF DIRECTION.—Staff assistance and direction that is thoroughly experienced in the application of modern office work, analysis

methods, and skilled in building sound working relationships with the operating personnel must be available.

The psychological phase of a work simplification program is of equal importance with the technical phase. Employees and supervisors alike have a natural and understandable resistance to examination of the manner in which their duties are performed. This entirely normal reaction can be overcome provided definite steps are taken to get the interested cooperation and participation of the working personnel. It is axiomatic that people believe in something in direct proportion to the extent to which they are a part of it. In a work simplification program, the active participation of operating personnel is one of the surest guarantees of constructive result.

Benefits of a Work Simplification Program.—There are many benefits which may accrue to a company which undertakes a vigorous program of work simplification. Some of these are set forth below and all are equally important:

1. *Stimulation of supervisory and clerical personnel.* Supervisory and clerical personnel who have participated in a well-organized work simplification program will have a more alert and informed attitude toward the work arising under their responsibility, or with which they are concerned. Employees like to feel that the company with which they are connected takes a progressive attitude toward its methods of operation. It is an indirect form of ego-recognition, but one which has a favorable effect nevertheless.

2. *Reduction in office operating expenses.* This is one of the most common results of intensive examination by the use of organized work analysis techniques.

3. *Improvement in service.* Frequently the service rendered by the office organization is substantially improved through work simplification studies. This benefit should not be overlooked when summarizing the favorable effect of a work simplification program.

4. *Indications for broader savings and improvements.* Oftentimes while conducting a work simplification program, evidence will be discovered that leads to major improvements, even though these improvements may be quite outside the scope of the work simplification program itself.

5. *Development of executive and planning abilities.* Executives who participate in work simplification programs become more skilled in analysis techniques which will carry over into their day-to-day work operations.

Techniques for a Work Simplification Program.—In the conduct of a work simplification program, many analysis tools can be used, each of which contributes some important sidelights on the area under review. It is necessary that the work simplification analyst have a very clear understanding of the theory, application, and limitations of each of these analysis tools in order that he may decide the proper combination to be used in the solution

of each problem. While each of the tools that will be described has a particular value, it is not always necessary or practicable to use every one in the conduct of a particular study. It is important to determine the combination to be used for each study—a matter of judgment that can be decided only by the analyst in the light of his own experience and practice, or in consultation with the supervisory and executive personnel of the organization. Although there are other analysis techniques used by many successful analysts and consultants than those listed below, these usually will be productive of satisfactory results in office-wide work simplification programs, for they have the virtue of being readily explainable to operating personnel. This is especially important when operating personnel assists in the conduct of work simplification studies. It is also important from the viewpoint of demonstrating the results of the studies to executive personnel, even where they do not actively participate in the studies.

Work Distribution Charts.—The work distribution chart is a device for showing the division of labor at the lowest level; that is, the working employee. It is a spread sheet, filled out by supervisors and employees, which provides a compact and coordinated résumé of the work of the unit under review. In addition, it shows the work operations performed by each employee and the approximate time spent by each employee on each of his assigned duties (Figure 105).

After a work distribution chart has been fully analyzed, it should be possible for the supervisor to prepare a tentative program that will include:

1. Procedures on which process charts are to be prepared.
2. Key employees either in point of service, authority, or importance of work operations who should be interviewed.
3. Necessity for additional data on the organizational setup.
4. Forms that are to be particularly studied.

The Process Chart.—The process chart is an analysis method that has particular appeal for operating personnel, especially when it is presented in simple form and its advantage fully explained. The mind seems peculiarly able to grasp a story that is told by a picture, especially if the picture is clear and well defined. Process charts give such a picture of office routines, through the use of certain simple symbols. Process charts will not make complicated procedures easy or reduce their complexity. A complex procedure will appear to be just as complicated on a process chart as it would be in a written description. By breaking down complicated routines into their elements, it is possible to simplify the study of the component parts of the whole routine. Proper charting brings into focus the nature of the individual steps and makes it possible to examine each segment of the routine, both for itself and in relation to all of the other phases involved (Figure 106). Another process chart is illustrated in Figure 114.

WORK DISTRIBUTION CHART

DIVISION _____
BRANCH _____
SECTION _____
SUB-SECTION _____

NAME AND SALARY	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	MAN HRS PER WEEK	TOTAL MAN HRS PER WEEK
POSITION, TITLE AND GRADE									
FUNCTIONS (WORK OPERATIONS)									

Figure 105. Work Distribution Chart

FORMS, RECORDS AND REPORTS QUESTIONNAIRE

1. Designation of office preparing report or form: Department _____
Division _____ Section _____ Unit _____
2. (a) Title _____ Form No. _____
(b) Brief description: _____

3. Authority for Report or Form: _____
4. Frequency of issue _____ No. of Pages _____ No. copies prepared _____
5. Elapsed time between date of data and date of release _____ days.
6. Distribution:

<u>Department</u>	<u>Name of Recipient</u>	<u>No. copies</u>
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(Continue on reverse side if necessary)

Figure 107. Forms, Records, and Reports Questionnaire

Forms, Records, and Reports Analysis Charts.—All forms, records, and reports are the reflection of clerical activity, and unnecessary forms or duplication of forms and reports lead, in turn, to unnecessary work or duplication of work. No clerical activity is completely efficient unless the forms and reports through which this clerical activity reflects itself are rigidly controlled in relation to the procedures involved.

To analyze forms, it is necessary to know which are currently in use, who prepares them, how they are prepared, who uses them, and the necessity for them. These necessary facts can be obtained through the use of a simple questionnaire (Figure 107) which develops the following information on every form currently in use within the organization.

1. The department, division, section, and unit where the form is prepared
2. The title, form number, and a brief description
3. The authority for its preparation
4. Frequency of issue, number of pages, number of copies
5. Elapsed time between date of form release and the last date of the underlying data
6. The distribution

The questionnaire should be returned to the analyst with two copies of filled-in forms. The analyst is then in a position to direct inquiry to all persons and units designated as recipients of copies of the form to determine the extent to which use is made of information on the form, and to determine also whether or not other sources just as convenient and complete are available to those receiving units. It often happens that a form is outmoded or unnecessary, though the fact may not be apparent either to those who prepare it or to those who use it.

When the elimination of a form is not advisable, attention is given to the possibility of combining the form with other forms having similar purpose and information. This may be accomplished frequently by studying a group of related forms and breaking down each individual item on these various forms. Such analysis is facilitated by the use of a "spread" sheet (Figure 108).

Layout Charts.—The determination of the layout of departments and desks in connection with office procedure is of great importance. Every effort should be made to recognize and accommodate such significant factors as the following:

1. Functional relationships
2. Frequency of transactions
3. Methods of communication
4. Special external and internal factors

Layout is a matter worthy of careful attention because, along with salaries and machine cost, space represents one of the heaviest expenses involved in the operation of any office. Figure 109 is an example of an improvement effected through the use of a simple type of process-layout chart, without any change in the basic procedure.

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
	INVOICE	PACKING & MARKING INSTR.	SHIPPING INSTR.	LETTER OF ACKNOWLEDG'T	PROOF OF ORDER	JOB TICKET	INTER CO. SHIP. TICKET (When)	SHIPPING TICKET (Signed)	SPECIAL CONSIGNEE ORDER	B/L	INTER OFFICE MEMO
Invoice No.	(X)	X	X	X	X	X	X	X		X	X
Date of Invoice	(X)										
State	(X)	X	X	X	X	X	X	X		X	X
Cash Charge	X										
Item Description	(X)	X	X	X	X	X	X	X		X	X
Quantity	(X)	(X)	(X)	X							
Specifications	X										
No. of items	X	X									
Delivery date (projected)	X										
Delivery date (actual)	X										
Remarks			X	(X)	X	(X)	X	X		X	X
Production Control No.					(X)	(X)					
Quantity Authorized for Production					(X)	(X)					
Date Production Authorized					(X)	(X)					
Marking Description		X	X								
Marking Instructions		X	X								
Instructions to Ship		X	X								
Name & Address of Consignee		(X)	(X)				X	X	X	X	X
Packing Code		X	X								
Commercial Carrier		X	X				X	X		X	X
Gross Weight							X	X		X	X
Name & Address of Consignor							X	X	X	X	X
Factory Point							X	X	X	X	X
Date of Shipment							X	X	X	X	X
Quantity shipped							X	X	X	X	X
Cubic feet							(X)				(X)
Date shipment to be released											
Port or Terminal City											
Location of material		X	X	(X)						X	X
Quantity available			(X)	(X)							
Consignor's Voucher No.											
S/T No.							X	X			
B/L No.							(X)				
Special Pro. No.							X	X		X	
Account Code							X	X		X	
Value of shipment for Ins. Purposes							X	X		X	
Receipt No.							X	X		X	
Date of Receipt							X	X		X	
Branch Office							X	X	X	X	
Damage Claim No.							X	X			
Return Claim No.	(X)	(X)	(X)	X	X			(X)	(X)		

Figure 108. Spread Sheet for Form and Record Analysis

Clerical Operations on Individual Jobs.—Studies of individual job operations may be made either by work simplification analysts or by supervisors in the course of a work simplification program. Where there are a large number of identical jobs, it is usually advisable to have the efforts of staff analysts supplemented by the efforts of supervisors. Supervisors and employees, working under the direction and general guidance of staff analysts, frequently can make worthwhile improvements in individual jobs at a reasonable cost through the application of job methods training techniques or similar simple methods. Where staff analysts make the studies, attention can be given to the principal elements of clerical operations on a more detailed basis.

1. *Job Methods Training Techniques.* The ordinary type of JMT analysis sheet should be used when supervisors engage in operations analysis, under the guidance of the staff analyst.

2. *Motion Study.*¹⁶ Figure 110 is an example of a motion breakdown sheet that is more detailed than the JMT analysis sheet, and which takes into account the elements of positioning, waiting, work, and dispositioning time. In addition to indicating whether the motions are performed by the right or left hand, the following factors are also considered :

- (a) Limits of working area
- (b) Extent to which body members are involved in motion
- (c) Effect of noise, lighting, ventilation, and temperature

Working Papers and Reports.—Working papers should be neat and legible. Scrawled and cumbersome working papers not only promote confused and haphazard thinking but tend to delay unnecessarily the carrying out of the assigned program and the preparation of the report.

The working papers for a work simplification program generally have four distinct sections :

- 1. Background material necessary for study
- 2. Outline of study to be followed
- 3. Findings of fact
- 4. Conclusions and recommendations

Conducting a Work Simplification Program.—The following procedures illustrate the manner in which a work simplification plan may be conducted in an organization.

DETERMINATION OF PLAN.—The personnel officer, comptroller, office manager, planning officer, and other interested key personnel will determine the type of program to be followed. This will require consideration of these and similar factors :

¹⁶ *Life Office Management Association Proceedings*, 1944.

RIGHT AND LEFT HAND CHART									
SUBJECT CHARTED _____		DATE _____ 19__							
CHARTED BY _____		SECTION _____							
CHART NO. _____		DIVISION _____							
SHEET NO. _____ OF _____									
SUMMARY									
		PRESENT	PROPOSED	SAVING					
NO. OF TRANSPORTATIONS									
NO. OF OPERATIONS									
TOTAL CYCLE TIME									
PRESENT METHOD				PROPOSED METHOD					
LEFT HAND		SYMBOL	SYMBOL	RIGHT HAND	LEFT HAND	SYMBOL	SYMBOL	RIGHT HAND	RIGHT HAND

Figure 110. Right and Left Hand Chart

1. Extent to which executive and supervisory personnel will be used in the program.
2. Integration of work simplification program with suggestion and training program already in effect or contemplated.
3. Timing of program in relation to company's work cycle.
4. Construction and duration of program.
 - (a) Technical phase.
 - (b) Psychological phase.

The entire program should be developed in written form and presented to the proper officer for his express approval.

ADVERTISING, PUBLIC RELATIONS, AND INSTRUCTION PHASE OF PROGRAM.—To gain the goodwill of the operating personnel in studies conducted by staff analysts should be a matter of standard policy. Special efforts will be required in this regard if the program involves the participation of executives and supervisors. This is extremely important—for the success of any broad program for work improvement that contemplates the use of supervisory personnel depends largely on two factors:

1. Simplicity and effectiveness of the techniques employed.
2. Degree to which supervisory personnel can be stimulated and their enthusiasm aroused.

STEPS IN A PROMOTION PROGRAM.—To show the importance attached to the promotion phase of a work simplification program, following are the steps which were taken in executing such a program in a large office organization:

1. An open letter was published over the signature of the president, announcing the establishment of the program.
2. Appreciation sessions were held for all officers and department heads in order to explain the program in detail and to emphasize the top management support behind the program.
3. Supervisors were nominated by their respective departments to participate in the program, and the head of each department delivered personal talks to each such supervisor to impress him with the importance and honor of being selected.
4. A formal notification and invitation to an appreciation session was given to these supervisors, delivered from the office of the president to each and every one of them.
5. The appreciation session was presented to the participating supervisors in greater detail than the explanation given to officers and department heads.

6. Training sessions were held—three—of about two hours each to explain to all of the supervisors the forms and charts they would use in preparing information for staff analysts.
7. While the training sessions were in progress, a first-page story in the company house organ outlined the program, and also contained testimonials or endorsements of the program from all of the department heads.
8. Shortly after the formal training sessions were concluded, a talk was delivered to all of the department heads outlining the manner in which the balance of the program was to be conducted and naming the date for the official opening of the program.
9. The official opening day fell on a Monday. On the preceding Sunday, a brief announcement of the program and the part he would be expected to play in it was placed on the desk of each and every employee. This announcement received a great deal of favorable comment throughout the office, and served to give complete and effective publicity to the program on the opening day.
10. On the morning of the opening day the following events took place:
 - (a) All of the supervisors participating in the program were assembled, and the executive vice-president addressed them regarding the part they would play in conducting intensive work improvement studies throughout the office.
 - (b) Another front page story appeared in the company house organ.
 - (c) A memorandum from the president was sent to all department heads stressing their responsibilities for the effective discharge of the program.

This may seem like a good deal of trouble to take with respect to the promotion side of a work simplification program, but experience has proved that without an intensive sales campaign the full benefits from this type of work simplification program cannot be realized. Operating supervisors are not under the direct control of the planning group—they are scattered throughout the office, beset daily with dozens of administrative details and exposed to all sorts of interruptions. Therefore, an enthusiasm for the work simplification program—an intense interest—that will bring them back to their management studies despite the distractions to which they may be exposed, must be established. This can be accomplished successfully if they are given the feeling of participation and they become convinced that they are truly part of a winning team.

CONDUCT OF STUDIES.—The first step, after an area for study has been selected, is to make the proper contact with the senior chief involved. At this meeting, which is on an entirely informal and friendly basis, the detailed program to be followed is outlined. Every effort is made to have the operat-

ing chief regard the analyst as a staff man attached temporarily to his own office to work out ways and means to effect any possible improvement in his operations. A date is set (approximately one week before the beginning of the study) on which the analyst will present the program to the junior executives and supervisors.

These on-the-job supervisors are invariably the persons who determine the extent of cooperation that will be afforded in the study, and every effort is made to gain their sympathetic interest. While there may be the authority of top management and the cooperation of the officers to support the analysts, there is no denying the fact that it is the attitude of the working supervisors which will in large measure determine the success or failure of the study. This meeting is kept completely informal and any appearance of lecturing or preaching is avoided. The probable benefits of the study are stressed—reduced costs, reductions in overtime, better work distribution, improved organization, streamlined procedures. The analyst makes plain that he expects to get valuable suggestions from both supervisors and clerks; and further, that the supervisor or clerk who makes the suggestion will get complete credit.

In sequence, organization charts, work distribution charts, process charts, layout charts, and sample copies of all forms, records, and reports are prepared. All this material is carefully studied by the analyst, and tentative conclusions are developed therefrom.

Interviews are held with supervisors and clerks as the analyst deems necessary. During these interviews the analyst determines the jobs on which more detailed clerical operations studies could be profitably performed. These studies are assigned either to supervisors or to analysts, depending on the number of jobs involved and the probable savings.

COMPILATION OF DATA AND DEVELOPMENT OF RECOMMENDATIONS.—When all of this information has been compiled, and all interviews completed, the analyst will have before him the following array of material concerning the unit under review:

1. Organization charts and work distribution charts
2. Process charts
3. Layout charts
4. Completed questionnaires on forms, records, and reports prepared or used
5. Operations studies on individual jobs
6. Interview reports

It is from this accumulation of data that recommendations come—in fact, may have already suggested themselves to the analyst or have been brought up in discussion with the operating personnel.

Following such discussions, reports are presented to the top management. This serves a dual purpose; it acquaints the responsible officer or chief with the results of the study and at the same time it forms a basis for the discussion of the recommendations advanced.

After the operating personnel have had an opportunity to study the recommendations, a meeting is held to learn their decision with respect to each recommendation. Exceptions to recommendations are noted, and the recommendations are either withdrawn, held over for further study, or marked for decision by senior officers. Only rejected recommendations of extreme importance should be referred by the analyst to the decision of senior officers, for the implications to the prestige of the operating chief concerned are too great to warrant such action when only moderate benefits can be gained.

On all accepted recommendations, the analyst gives the utmost assistance in writing up standard procedures, the selection and installation of necessary equipment, and the clearing of changes with other departments which may be affected.

The reader may find Figures 111 to 118, inclusive, of interest in connection with work simplification. They are included in this chapter.

Analysis Techniques—Charts

Static Charts.—These charts deal with factors that are at rest or in equilibrium. They cover the following types:

MAP.—A map would be any representation of the surface of the earth or a part of it: also such representation in whole or in part of the celestial sphere. It is worth noting that the *Encyclopaedia Britannica* lists 25 different types of maps. The use of maps in conjunction with pins, ribbons, shading, and the like is utilized by many companies to indicate markets or distribution facilities.

DIAGRAM.—A diagram is a line drawing of a small area. Floor plans are the most outstanding example of this. This type of chart is so commonly accepted by office management that it requires no elaboration. The physical flow of work through an office can be well portrayed on this type of chart. (See Figure 111.)

CLASSIFICATION.—A classification is the reduction of a given idea to its component parts and their relationship to each other; i.e., the “whole” subdivided according to its “parts.” The “box” chart is the better known type, but idea relationship can be shown by charts that resemble rivers, trees, spiderwebs, or planetary systems. (See Figure 112.)

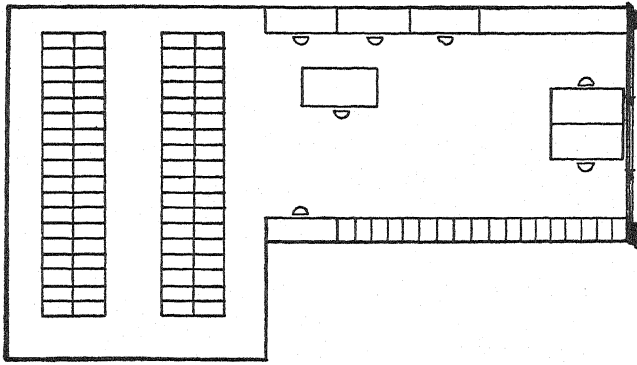


Figure 111. Diagrams—Small Areas

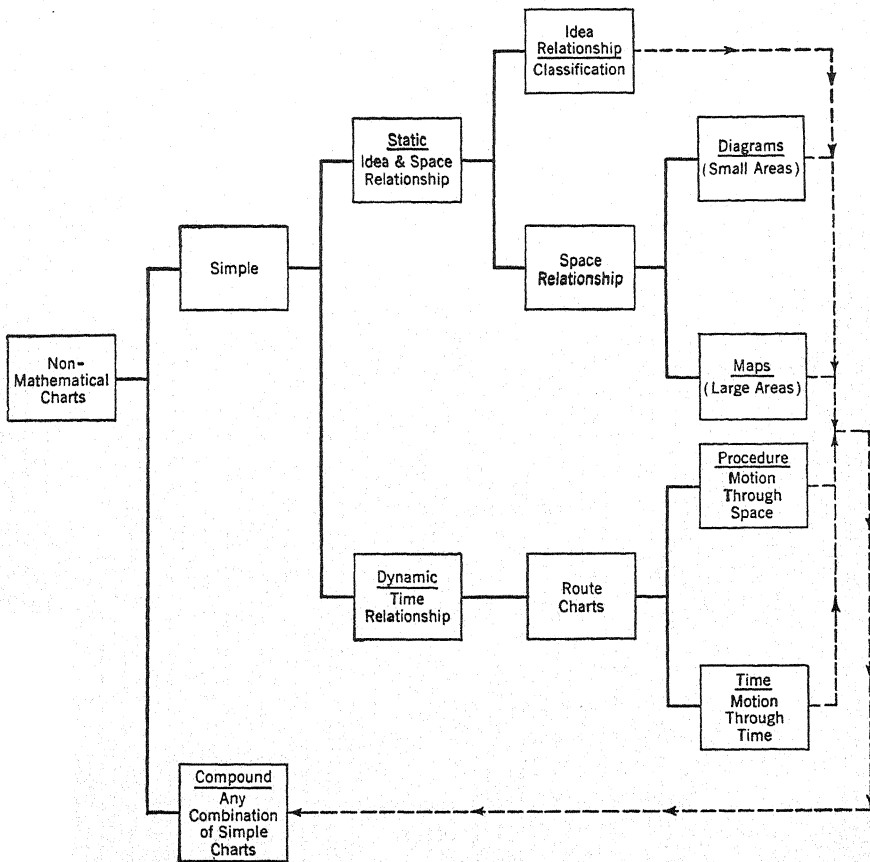


Figure 112. Classification Chart

Dynamic Charts.—These reveal “motion” through either space or time. This type of chart, frequently referred to as a route chart, shows the time between steps, changes, or events. These charts are divided as follows :

TIME CHARTS.—A time chart (Figure 113) shows the interval of time between steps and events, i.e., motion through time. Time charts are relatively simple, with a time scale so established that the various operations may be shown in their time relationship to each other. A glance at the chart will

ALLOCATION OF WORKING HOURS RELIEF PERIOD AND LUNCH																							
MONDAY												TUESDAY											
CLERK	8	9	10	11	12	1	2	3	4	5	6	8	9	10	11	12	1	2	3	4	5	6	
A																							
B																							
C																							
D																							

Figure 113. Time Chart

show the time interval between steps or events. This relationship can be shown by means of crosses, checks, or solid shading along the affected operation.

PROCEDURE.—A procedure chart is a graphic portrayal of the direction and nature of action; i.e., motion through space. Procedure charts are in turn divided into process, form distribution, correlation, and compound procedure charts.

1. *Process Chart* (Figure 114) is a detailed record of the successive steps in a process. (See also Figure 106.) By means of symbols established for certain common factors, usually operation, transportation, storage, and inspection, it presents in chronological order what happens. It summarizes the total number of each major type of process. While this chart clearly portrays the type of action, it does not lend itself to a thorough comparison of the interdepartmental operations and relations.

2. *Form Distribution Chart* (Figure 115) shows graphically how each copy of a form is distributed from its inception to permanent filing or destruction. This type of chart is prepared quickly, saves detailed descrip-

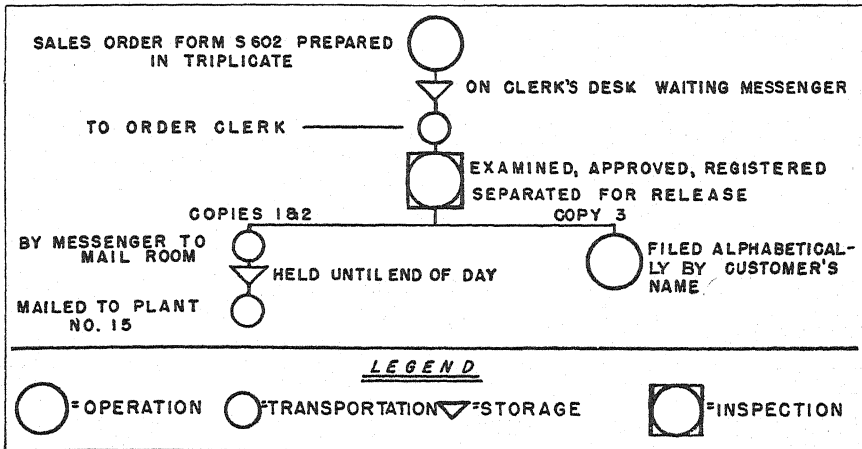


Figure 114. Process Chart

tion, and reveals conditions that should be questioned. Its greatest short-coming is that it does not provide sufficient explanation of the action taken on each copy. This precludes the possibility of a complete analysis that might reveal duplication of effort and reduces the amount of improvement that might be made.

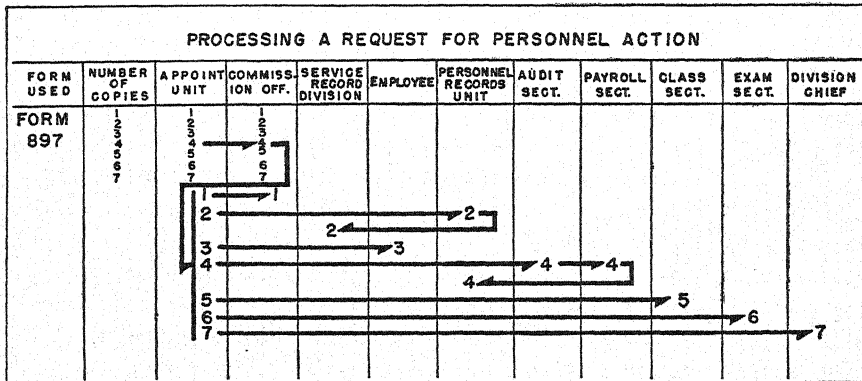


Figure 115. Form Distribution Chart

3. *Correlation Chart* (Figure 116) provides a brief description of the operations involved and identifies the group or individual who performs them. The process is shown by lines connecting the related points. This type of chart cannot be adapted to processes that involve split operations, as any effort to chart this would confuse the reader and make either understanding or analysis quite difficult.

4. *Compound Procedure Chart* (Figure 117) portrays the processes, form distribution, and relationship of effort in an operation. It involves a series of symbols to indicate such procedures as operation, transportation, storage (temporary and permanent), and destruction. The flow of work and material between departments is indicated. This chart presents to management an over-all picture that permits thorough operation analysis

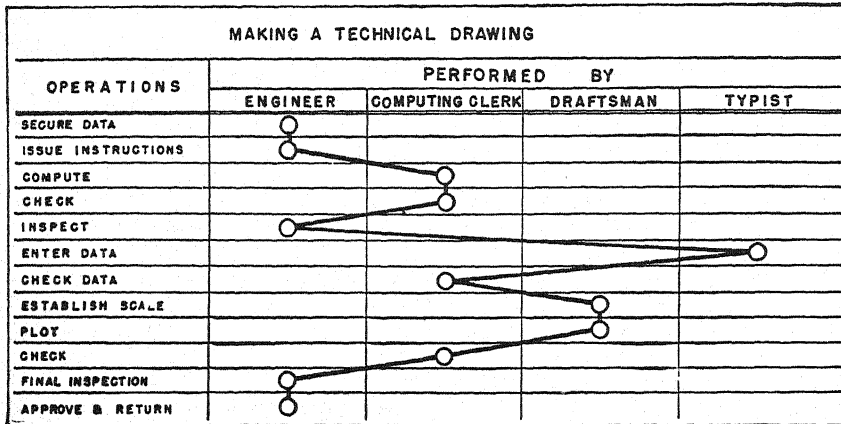


Figure 116. Job Correlation Chart

and affords every means of securing maximum improvement through the elimination of unnecessary effort, duplication, lost motion, and the like.

The compilation of the data to be used in conjunction with a dynamic or route chart represents no small undertaking, as an accurate record of the steps must be made in their exact sequence. In simple cases the successive steps may be listed or tabulated and indented margins utilized to indicate the breaks or changes. Complicated operations will require exhaustive notes or rough working sketches.

Most of the data produced on charts of this type can be predicated upon a predetermined series of components. Production processes usually involve three major components: the operator, the object, and the operation. In the development of these charts the "Who?" "What?" "How?" formula brings to light nearly all the required information. Distribution processes are usually reduced to the place, the person, and the units involved and require the "Where?" "By Whom?" and "How Much?" technique.

Progress Charts.—The most "forward-looking" chart is beyond all doubt the progress chart (Figure 118) or, as it is frequently called, the Gantt chart. It presents in graphic terms a comparison of what is done with what is to be done. Through its use, management is kept posted as to the progress being made in the execution of its planning and, if the progress

is not satisfactory, the chart reveals the reason why. While this chart was developed for factory use primarily it has many excellent office applications. Furthermore, it can be used by the office to simplify the keeping of plant records.

The chart is so ruled that each division of space represents both an amount of time and quantity of work to be done during the particular unit of time. Horizontal lines drawn through these spaces show the relationship between the quantity of work actually done and that which is scheduled. In this

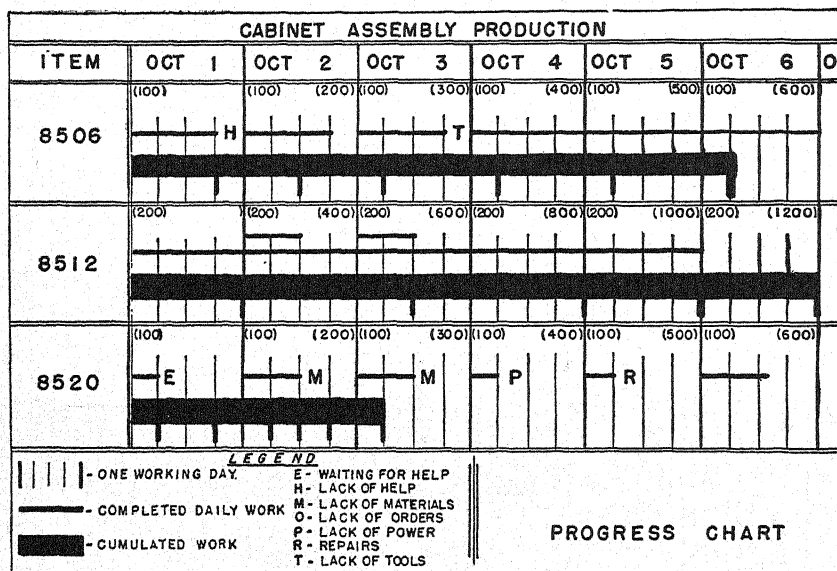


Figure 118. Progress Chart

manner it is possible to distinguish between equal divisions of time, which are constant and the variations in the amount of work scheduled and accomplished, which are variables.

A week's work may be planned on the basis of having 100 type #8506 cabinets assembled each day of the week from Monday through Saturday. A sheet is ruled with equal spaces to represent the days and with four equal sub-spaces to represent the divisions of work. Projected figures are shown in the left-hand corner for each day; cumulative totals are shown in the right-hand corner. Note in Figure 118 that on Monday, Tuesday, and Wednesday only 75 units were assembled each day. Lines are drawn through three of the four sub-spaces for each day, thereby representing the quantities actually produced. On Thursday and Friday 100 units were completed and the lines are drawn completely across the space to designate these days. As the work progresses the cumulative production is shown by

means of a heavy line immediately under the light lines which show the daily production. On Monday the heavy line is the same length as the light line, but on Tuesday it covers only half the space shown for this day, thereby indicating that the plant is 50 units behind schedule. This process continues throughout the week. By means of the cumulative line it is possible to measure the work actually accomplished in terms of that scheduled.

This method of charting can be used to show the progress of many office operations. Tabulating machine activity is so charted by many companies; clerical production is another use. The efficient utilization of this chart is limited only to the imagination of the person using it.

Progress charts fall into four general categories: machine record, man record, layout, and load charts. These are basically the same as shown in Figure 116, with the necessary modifications in structure and coding.

MACHINE RECORD CHARTS.—These charts show graphically the relationship between what a machine can do and has done. The object of the chart is to determine whether or not available machine time is being used and, if not, the reasons for idleness. The gap between the possible and the actual time required establishes the amount of idleness, while the code symbol indicates the cause.

MAN RECORD CHARTS.—These charts portray the productivity of a worker and indicate whether or not he is making proper use of his working hours and, if not, why. This information is projected in terms of the time estimated for a job and that actually required. The difference between the two represents the lost working time.

LAYOUT CHART.—A layout chart is a graphic mechanism that portrays the quantity of production wanted and the best possible utilization of men and machines to secure the amounts desired. It establishes when work is to begin, the machines and workers to do it, and how long it will take. Its purpose is to avoid having idle men and equipment and to complete work in the order of its importance and established date.

LOAD CHARTS.—Load charts portray the classes of machines and the hours of work assigned to them in terms of days, weeks, or even months. It is similar to a layout chart in that it shows how much work is to be done but differs in that it does not show details of each operation and the individual machines to do the work. Its purpose is to show the load of work ahead of the plant.

Analysis Techniques—Time and Motion Study

History of Motion Study.—The purpose of this material is to present a brief understandable picture of the background, principles, and use of

motion study in simple, non-technical terms. An appreciation of the inherent simplicity and common sense of motion study should lead to wider interest and acceptance as a sensible way to eliminate waste in complicated office procedure.¹⁷

Motion study was defined in *Applied Motion Study*, by Frank and Dr. Lillian Gilbreth, in 1917, as follows: "Motion Study consists of dividing work into the most fundamental elements possible, studying these elements separately and in relation to one another; and from these studied elements when timed building methods of least waste." Since that time motion study has been applied to improve operations, groups of operations, and entire processes. These processes may include an entire series of operations, material handling, and storing. Because all operations are not of the same importance, the same degree of detailed study is not justified in all cases. Different tools and techniques have been developed, varying in the detail and cost of the study, to enable the analyst to apply profitably the principles of motion economy to jobs of varying importance. Since process and procedure have been covered elsewhere, this treatment will be limited to an operation involving the activity of a worker at a workplace.

For this purpose motion study may be defined as the study of the detail of any physical activity for the purpose of developing a better and easier method. The better and easier method must be mutually advantageous to all concerned: employer, worker, and consumer. The employer must receive more units of work or better quality at a lower price per unit. The worker must produce more units with less effort in less time for a higher total return while the consumer must receive more value in his purchase.

The simple way is usually the easiest and best way. However, the sum total of the simplest elements does not always add up to the simplest total. This will be amplified later. Generally speaking, the elimination of waste motion, time, and effort will develop the best way.¹⁸

Development of Motion Study.—The development of motion study reads like a romance, the story of an inspired couple devoted to an ideal. Frank and his wife, Dr. Lillian Gilbreth, devoted themselves to making life better by making work easier. Frank Gilbreth, as a young man in 1885, learning the bricklaying trade, observed the different methods used by his instructor in teaching, laying brick at normal speed and laying brick at high

¹⁷ The reader who is interested in studying the subject will find these books helpful: H. C. Sampster, *Motion Study*, Pitman Publishing Corp., New York, 1941; Ralph M. Barnes, *Motion and Time Study*, John Wiley & Sons, Inc., New York, 1940; Robert L. Morrow, *Time Study and Motion Economy*, The Ronald Press Co., New York, 1946; Walter G. Holmes, *Applied Time and Motion Study*, The Ronald Press Co., New York, 1945.

¹⁸ An excellent sound film, "Work Simplification Adapted to Clerical Procedures," illustrating the result of motion study of office operations is available through the Standard Register Company local offices as part of a "Methods Clinic."

speed. He wondered why the different motions, and more important, did something about it. His curiosity led him to develop methods for answering the question "why." The flow process chart, use of the motion picture camera when it became available, breakdown of motion patterns into standard elements of motion called "therbligs" (Gilbreth spelled backwards), micro-motion study, the cyclograph, and chronocyclograph are among the major contributions of the Gilbreths to today's motion study.

During World War I the Gilbreths performed outstanding services in adapting jobs and developing training programs for handicapped casualties of that war. Dr. Lillian Gilbreth has continued that work and during World War II helped bring hope and confidence back to countless handicapped young men. The Gilbreths prepared a scientific foundation for making work easier yet more productive, which is being carried on by countless others today.

Essentials of Motion Study.—In considering motion study it is well to bear in mind how the human machine functions. The human machine is not only a highly complex mechanism but the controls of that machine are even more complex and unpredictable. In determining the "best way" in which the human machine can function there are usually two approaches to the solution. A "best way" can be developed in terms of a normal individual with average aptitude and ability, or what appears to be on the surface the simplest way may be developed. The latter, however, may require special skill and aptitude. In such a case it will be necessary to seek out people with special qualities to perform the operation. Whenever possible it is better to develop the "best way" which can be performed by a normal average person without special skills or involved training.

Various rules, principles, or fundamentals for developing the better, easier method numbering a score or more have been laid down at different times.¹⁹ The following is a statement of some of these principles and rules:

1. *Physical activity or motions should be productive.* Conversely, non-productive motion should be eliminated as far as possible. An orderly workplace, "a place for everything and everything in its place," is the first step in accomplishing this objective. If the workplace is laid out in accordance with Figures 119 and 120 within the normal or at most the maximum working area, it will further the cause. Long reaches, hunting for material or tools, carrying either material or tools further than absolutely necessary will all be reduced to a minimum. Pre-positioning of tools and materials can frequently eliminate much waste motion. A simple holding device or fixture may release a hand for productive work and relieve that hand of a tiring and energy-consuming activity in the holding. Automatic eject devices

¹⁹ For discussion of various rules see Sampster, *op. cit.* For detailed technical treatment see Barnes, *op. cit.*

and drop deliveries will eliminate or reduce non-productive motions. Idleness of either hand obviously is not productive.

2. *The composite motion pattern (the total of all the motions involved in operations studied) should be arranged to permit a rhythm or smooth flow of motion in the work.* Motions made simultaneously and in opposite directions are natural and contribute to smooth flow or rhythm. Continuous curved motions are more conducive to rhythm than straight line motions with

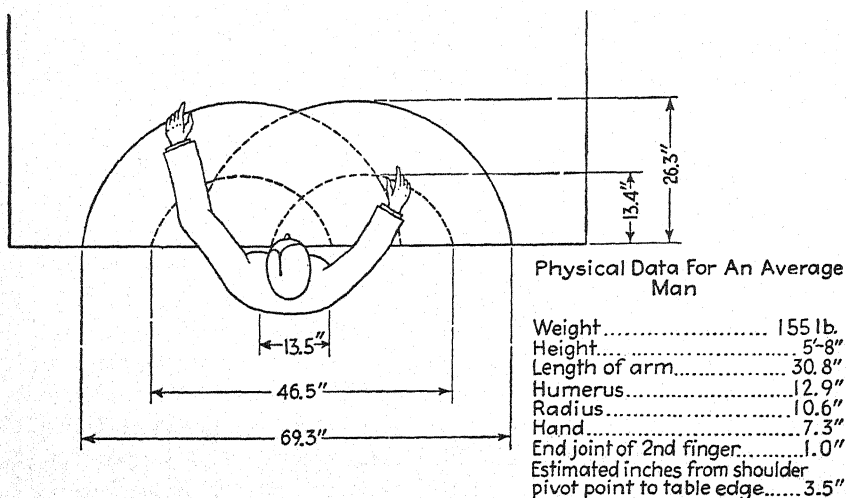


Figure 119. Normal Working Areas

sudden starts, stops, and changes in direction. Motions which use the momentum of the motion itself to aid in performing the work are more effective and more rhythmic than controlled motions. Devices which provide a stop against which momentum of a motion may be expended eliminate the need for muscular control of the motion. An example of such a device is the carriage return on the typewriter.²⁰

3. *Motions should be as simple as possible and yet be consistent with the previous principles.* Motions involving the use of the hands have been classified as follows:

- (a) Finger motions
- (b) Finger and wrist motions
- (c) Finger, wrist, and forearm motions
- (d) Finger, wrist and entire arm motions
- (e) Finger, wrist, arm and shoulder, or body motions

²⁰ A fine example of rhythm is shown in a color sound film of a speed typist, typing to music on an electromatic typewriter, International Business Machines Corporation.

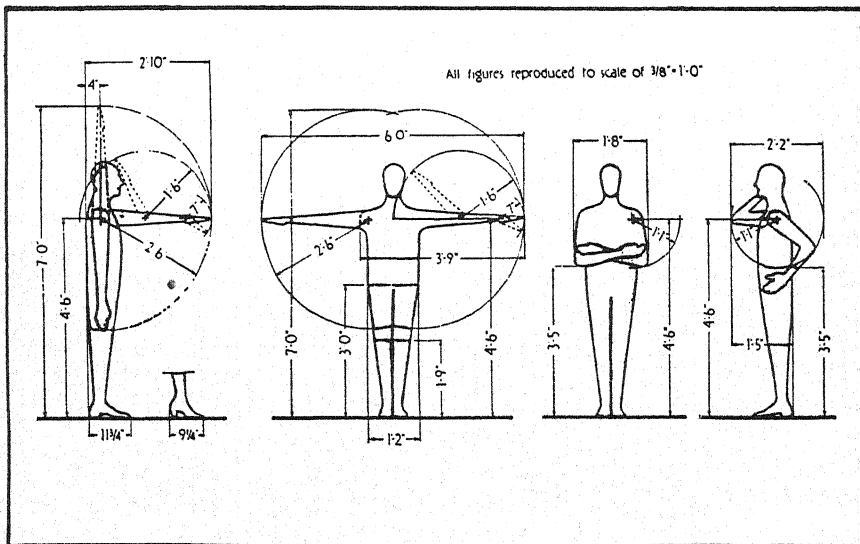
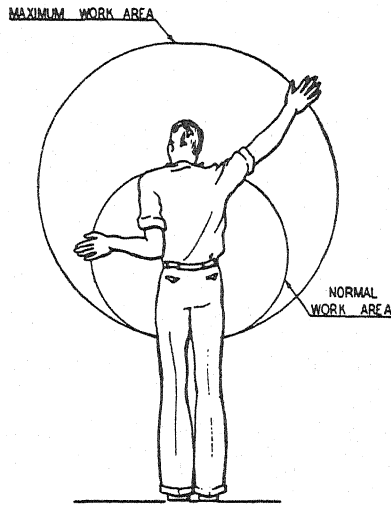


Figure 120. Dimensions of the Human Figure

Simple motions usually require less expenditure of effort than more complicated motions. This may be modified however to comply with principle No. 2.

4. *The worker should be at ease.* Correct desk or workplace height, correct type and height of chair, provision to alternately sit and stand at the

job if possible, proper lighting, colors of tools, workplace, and background, ventilation, reduction of noise, other disturbances or interruptions all contribute to the comfort of the worker. Flow of work or backlog of work, while not generally considered a part of motion study, is important particularly in the office in maintaining good working habits and motion patterns. Nothing can so quickly destroy a good motion pattern as lack of work causing the worker to stretch the work to take up time. On the other hand, an excessive load of work ahead tends to place the worker under tension again interfering with good motion habits. While a worker under tension, mental or physical, due to outside stimulus may perform at top speed, the duration of such performance must be limited. For a continuous high level of performance, all factors must contribute to make the operator at ease, mentally and physically relaxed. Finally, to be at ease, the worker must be convinced that the better and easier way is actually a better and easier way for him. To accept it, the worker must either be sold, not pressured, by the expert, or participate in developing the better, easier way which in itself assures acceptance.

Tools of Motion Study.—Before attempting to improve an operation through motion study it is presumed that the process or procedure, of which the operation is a part, has been studied and improved. Individual operations will have been eliminated, combined, changed in sequence, and in many cases simplified as the result of the previous study. Then, and only then, should motion study be considered as a means to further simplify the remaining operations.

A thorough study of the process or procedure will have accumulated the facts necessary to determine whether or not any of these operations justify further study. Production records obtained during the procedure study will show the cost of the operation, the frequency with which it is repeated, the number of operators, and the effect it may have on subsequent operations. If the operation is highly repetitive, requires the time of several or many operators, and is probably a permanent part of the procedure, or constitutes a bottleneck which delays subsequent operations, it is more likely to be a suitable subject for detailed study. Experience with the various methods for studying operations will soon enable the methods man to estimate the time required for a study and balance the cost of the study and improvement against the potential savings.

The pattern of the study follows much the same pattern as the process or procedure study. First the job is broken down and charted, using one of the methods described in this section. The chart is then studied for weaknesses such as idle time, excessive use of hands for holding, unnecessary operations, etc., questioning every element in the chart to eliminate, combine, or change the sequence. The improved motion pattern is de-

veloped and evaluated. A test or experimental setup may be used to good advantage in proving the new operation and selling it to other operators.

OPERATOR CHART.—The operator chart, frequently called a right- and left-hand chart (Figures 121 and 122) is similar in form to the flow process chart. (See also Figure 110.) The motions of each hand are recorded as shown in relation to each other. Figure 121, the old method, shows the left hand acting as a holding device most of the time. Figure 122, the new method, indicates the possibility for improvement when both hands work together. The operation is smoother, easier, and very nearly four times as productive.

This type of chart is prepared by an observer familiar with motions and trained to observe accurately. Time is not used as a measurement. The study can be made quickly as compared with other types and frequently uncovers most of the improvements which might be found through more detailed study. Because of its speed and resultant economy it can be used on many temporary or intermittent operations which would not justify the more extensive study.

MULTIPLE ACTIVITY CHART.—The multiple activity chart is similar in form to the operator chart with the addition of a time scale. Bar chart and description columns are required for each element charted. (Figure 123.) Frequently it is referred to as a man and machine chart. The bar chart for each activity emphasizes idleness and other non-productive elements by various shading patterns or by color.

Figure 123 shows a manual operation performed while the machine is idle. Through the use of continuous prefabricated forms some or all of this time, depending on the type of form, may be released for typing. This will utilize the machine more efficiently and the operator at a higher skill.

The charts are usually prepared from observations and stop watch times for the various elements. Times may be built up (synthesized) from standards previously established for the same or similar motions or elements of motion or the chart may result from analysis of micro-motion pictures.

The multiple activity chart is used where more than two activities are being studied. It must be made by a trained analyst. Time required is much greater than for the operator chart, therefore the multiple activity chart should be used only when the repetitive nature of the job, relatively high cost or volume of the work justifies the investment.

SIMULTANEOUS MOTION (SIMO) CHART.—The simultaneous motion chart contains elements of both the operator chart and the multiple activity chart. Motions of the right and left hands (Figure 124) are shown in exact relationship to each other with time measurement for each motion or element

IDENTIFICATION		SUMMARY		PRESENT PROPOSED	
SUBJECT CHARTED <i>COLLATING 4 PART CIRCULAR LETTER</i>		NO. OF OPERATIONS		<input checked="" type="checkbox"/>	
OPERATION		NO. OF TRANSPORTATIONS			
DRAWING NO. _____ PART NO. _____		NO. OF STORAGES			
CHARTED BY _____		NO. OF INSPECTIONS			
CHART NO. _____ SHEET NO. _____ OF _____		DISTANCE TRAVELLED			
DATE _____		PRODUCTION PER HOUR			
PLANT _____		OPER. TIME OR BEST CYCLE			
DEPARTMENT _____		MACH. TIME OR BEST CYCLE			
MACHINE TYPE _____		OPRATOR EFFECTIVENESS - %			
MACHINE NO. _____		MACHINE EFFECTIVENESS - %			
INST. COST OF PROP. METHOD		LABOR COST PER			
		MATERIAL COST PER			

DESCRIPTION OF PRESENT METHOD <input type="checkbox"/> PRESENT METHOD <input checked="" type="checkbox"/> LEFT - HAND <input type="checkbox"/> MAN	OPERATION TRANSPORT STORAGE INSPECTION	SYMBOL DISTANCE TRAV STORAGE MIN	TIME OR METER READING	SYMBOL DISTANCE TRAV STORAGE MIN	OPERATION TRANSPORT STORAGE INSPECTION	DESCRIPTION OF PROPOSED METHOD
						<input type="checkbox"/> PROPOSED METHOD <input checked="" type="checkbox"/> RIGHT HAND <input type="checkbox"/> MACHINE
1 <i>IDLE</i>	○ ○ △ □				○ ○ △ □	<i>TO "A"</i>
2 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>REMOVE SHEET "A"</i>
3 <i>GRASP END OF SHEET "A"</i>	○ ○ △ □				○ ○ △ □	<i>TO LEFT HAND</i>
4 <i>HOLD SHEET</i>	○ ○ △ □				○ ○ △ □	<i>RELEASE SHEET "A"</i>
5 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>TO "B"</i>
6 <i>GRASP END OF SHEET "B"</i>	○ ○ △ □				○ ○ △ □	<i>REMOVE SHEET "B"</i>
7 <i>HOLD TWO SHEETS</i>	○ ○ △ □				○ ○ △ □	<i>TO LEFT HAND</i>
8 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>RELEASE SHEET "B"</i>
9 <i>GRASP END OF SHEET "C"</i>	○ ○ △ □				○ ○ △ □	<i>TO "C"</i>
10 <i>HOLD THREE SHEETS</i>	○ ○ △ □				○ ○ △ □	<i>REMOVE SHEET "C"</i>
11 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>TO LEFT HAND</i>
12 <i>GRASP END OF SHEET "D"</i>	○ ○ △ □				○ ○ △ □	<i>RELEASE SHEET "C"</i>
13 <i>HOLD FOUR SHEETS</i>	○ ○ △ □				○ ○ △ □	<i>TO "D"</i>
14 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>REMOVE SHEET "D"</i>
15 <i>GRASP END OF SHEET "E"</i>	○ ○ △ □				○ ○ △ □	<i>TO LEFT HAND</i>
16 <i>HOLD FIVE SHEETS</i>	○ ○ △ □				○ ○ △ □	<i>RELEASE SHEET "D"</i>
17 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	<i>IDLE</i>
18 <i>GRASP END OF SHEET "F"</i>	○ ○ △ □				○ ○ △ □	
19 <i>HOLD SIX SHEETS</i>	○ ○ △ □				○ ○ △ □	
20 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
21 <i>GRASP END OF SHEET "G"</i>	○ ○ △ □				○ ○ △ □	
22 <i>HOLD SEVEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
23 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
24 <i>GRASP END OF SHEET "H"</i>	○ ○ △ □				○ ○ △ □	
25 <i>HOLD EIGHT SHEETS</i>	○ ○ △ □				○ ○ △ □	
26 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
27 <i>GRASP END OF SHEET "I"</i>	○ ○ △ □				○ ○ △ □	
28 <i>HOLD NINE SHEETS</i>	○ ○ △ □				○ ○ △ □	
29 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
30 <i>GRASP END OF SHEET "J"</i>	○ ○ △ □				○ ○ △ □	
31 <i>HOLD TEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
32 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
33 <i>GRASP END OF SHEET "K"</i>	○ ○ △ □				○ ○ △ □	
34 <i>HOLD ELEVEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
35 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
36 <i>GRASP END OF SHEET "L"</i>	○ ○ △ □				○ ○ △ □	
37 <i>HOLD TWELVE SHEETS</i>	○ ○ △ □				○ ○ △ □	
38 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
39 <i>GRASP END OF SHEET "M"</i>	○ ○ △ □				○ ○ △ □	
40 <i>HOLD THIRTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
41 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
42 <i>GRASP END OF SHEET "N"</i>	○ ○ △ □				○ ○ △ □	
43 <i>HOLD FOURTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
44 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
45 <i>GRASP END OF SHEET "O"</i>	○ ○ △ □				○ ○ △ □	
46 <i>HOLD FIFTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
47 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
48 <i>GRASP END OF SHEET "P"</i>	○ ○ △ □				○ ○ △ □	
49 <i>HOLD SIXTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
50 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
51 <i>GRASP END OF SHEET "Q"</i>	○ ○ △ □				○ ○ △ □	
52 <i>HOLD SEVENTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
53 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
54 <i>GRASP END OF SHEET "R"</i>	○ ○ △ □				○ ○ △ □	
55 <i>HOLD EIGHTEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
56 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
57 <i>GRASP END OF SHEET "S"</i>	○ ○ △ □				○ ○ △ □	
58 <i>HOLD NINETEEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
59 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
60 <i>GRASP END OF SHEET "T"</i>	○ ○ △ □				○ ○ △ □	
61 <i>HOLD TWENTY SHEETS</i>	○ ○ △ □				○ ○ △ □	
62 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
63 <i>GRASP END OF SHEET "U"</i>	○ ○ △ □				○ ○ △ □	
64 <i>HOLD TWENTY-ONE SHEETS</i>	○ ○ △ □				○ ○ △ □	
65 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
66 <i>GRASP END OF SHEET "V"</i>	○ ○ △ □				○ ○ △ □	
67 <i>HOLD TWENTY-TWO SHEETS</i>	○ ○ △ □				○ ○ △ □	
68 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
69 <i>GRASP END OF SHEET "W"</i>	○ ○ △ □				○ ○ △ □	
70 <i>HOLD TWENTY-THREE SHEETS</i>	○ ○ △ □				○ ○ △ □	
71 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
72 <i>GRASP END OF SHEET "X"</i>	○ ○ △ □				○ ○ △ □	
73 <i>HOLD TWENTY-FOUR SHEETS</i>	○ ○ △ □				○ ○ △ □	
74 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
75 <i>GRASP END OF SHEET "Y"</i>	○ ○ △ □				○ ○ △ □	
76 <i>HOLD TWENTY-FIVE SHEETS</i>	○ ○ △ □				○ ○ △ □	
77 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
78 <i>GRASP END OF SHEET "Z"</i>	○ ○ △ □				○ ○ △ □	
79 <i>HOLD TWENTY-SIX SHEETS</i>	○ ○ △ □				○ ○ △ □	
80 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
81 <i>GRASP END OF SHEET "A"</i>	○ ○ △ □				○ ○ △ □	
82 <i>HOLD TWENTY-SEVEN SHEETS</i>	○ ○ △ □				○ ○ △ □	
83 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
84 <i>GRASP END OF SHEET "B"</i>	○ ○ △ □				○ ○ △ □	
85 <i>HOLD TWENTY-EIGHT SHEETS</i>	○ ○ △ □				○ ○ △ □	
86 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
87 <i>GRASP END OF SHEET "C"</i>	○ ○ △ □				○ ○ △ □	
88 <i>HOLD TWENTY-NINE SHEETS</i>	○ ○ △ □				○ ○ △ □	
89 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
90 <i>GRASP END OF SHEET "D"</i>	○ ○ △ □				○ ○ △ □	
91 <i>HOLD THIRTY SHEETS</i>	○ ○ △ □				○ ○ △ □	
92 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
93 <i>GRASP END OF SHEET "E"</i>	○ ○ △ □				○ ○ △ □	
94 <i>HOLD THIRTY-ONE SHEETS</i>	○ ○ △ □				○ ○ △ □	
95 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
96 <i>GRASP END OF SHEET "F"</i>	○ ○ △ □				○ ○ △ □	
97 <i>HOLD THIRTY-TWO SHEETS</i>	○ ○ △ □				○ ○ △ □	
98 <i>TO RIGHT HAND</i>	○ ○ △ □				○ ○ △ □	
99 <i>GRASP END OF SHEET "G"</i>	○ ○ △ □				○ ○ △ □	
100 <i>HOLD THIRTY-THREE SHEETS</i>	○ ○ △ □				○ ○ △ □	

Figure 122. Work Simplification Chart (New Method)

[illegible]

Figure 124. Simultaneous Motion Work Simplification Chart

chart, like the multiple activity chart, may be prepared from observations and stop watch times, observations and synthesized times, or from micro-motion films. As with the multiple activity chart, the study must be made by a trained motion study analyst and used only when the potential saving will justify the cost.

Micromotion Study.—Micromotion study is detailed motion study using motion pictures to record the motions and times. Skillful photography will provide a permanent record of all the motions in detail. A timing device

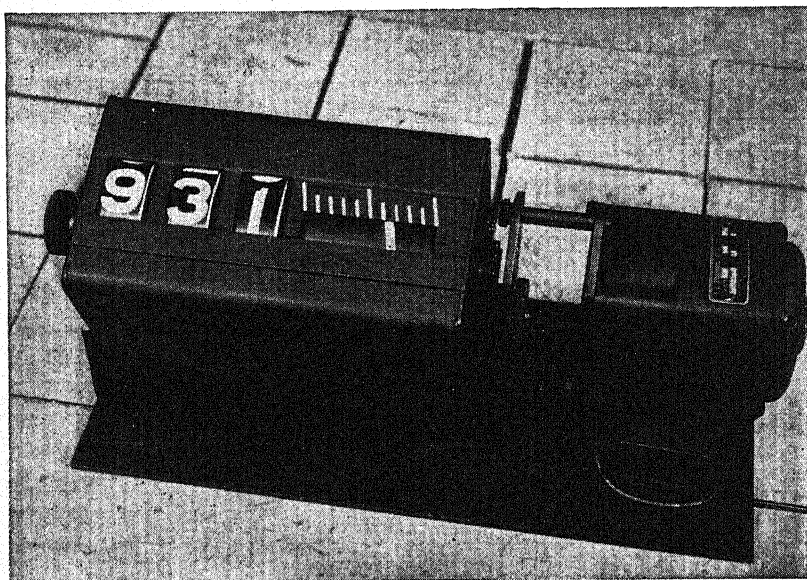


Figure 125. Wink Counter

The counter placed within camera range while photographing operations for micro-motion study, times the operation in winks ($\frac{1}{2000}$ of a minute). Multiples of 10 winks are shown by the numbers. Single winks are indicated on the vernier scale. The reading shown is 9316 to the nearest wink. The wink counter will record up to 9999 winks or 5 minutes, is equivalent to the clock with the three hands but easier to read with less likelihood of error. In use, the difference between the first reading and the last reading photographed in a sequence is the measurement of the elapsed time. (Developed by David B. Porter, Professor Industrial Engineering, New York University.)

such as a special clock or counter (Figure 125) photographed as part of the operation or a camera of constant known speed provides time measurement accurate to .001 or .0005 of a minute. The camera is used instead of the observer with a stop watch or supplementing the observer. While the record made is, as far as it goes, more accurate than the observer's record it is limited to relatively few cycles of the operation and usually represents better than average performance by an operator stimulated by being made the center of attention.

The cost of the micromotion study is so much higher than other motion study methods that it can be used profitably only on highly repetitive jobs where the volume of work and potential savings are large unless collateral values justify the added expense. Motion pictures for the training of operators or to develop a motion consciousness among those interested in methods improvement frequently provide greater values than the improvement itself.

Micromotion studies should be made by a trained motion analyst who has had sufficient experience with the motion picture camera to be able to record the details of the operation accurately.²² The first step, frequently neglected, is to make an operator chart from observation. From this the picture-taking can be planned so that no detail of the operation will be omitted. An outline of the shots to be made, prepared from the operator chart, will save much time in photographing. Detail as to operation, location, time, operator, and footage for each shot aids in the film analysis. A slate on which the title of the operation and scene number may be written, exposed at the beginning of each sequence, standard practice in professional work, further simplifies the analysis.

The operator to be photographed should have poise, thorough knowledge of the operation, and be able to work under pressure. The purpose of the filming should be explained and the operator put at ease as far as possible. The time and place should be selected to cause as little disturbance to others as possible.

Analysis of the processed film may be made with a film viewer but a projector equipped for variable speed projection from still to at least normal speed is far more satisfactory. The entire film is examined, time of each cycle and any irregularities noted. Cycles are then analyzed in detail by noting the motions and times for the activity of one hand, then the other, on a film analysis sheet. This does not indicate relationship between the activities of the two hands. The information is then transferred to a simultaneous motion chart such as shown in Figure 124.

EQUIPMENT REQUIRED.—Equipment required for making micromotion pictures includes:

1. *Camera.* A high quality amateur 16-mm. camera with good quality lenses, preferably in a turret mount, is acceptable. These cameras, being spring driven, limit the length of the operation which can be photographed without stopping for rewinding. In some cases this may impair the value of the pictures. However, since the greatest values of micromotion study are obtained from the highly repetitive cycles, which are usually short, this limitation is not too serious. Fast lenses, F.1.9 if possible, will ease the lighting problem. A standard 25-mm. lens, a telephoto lens 2½ in. or 3 in. for close-

²² "How to Make Good Motion Pictures," published by Eastman Kodak Company, is an excellent guide to the neophyte.

ups and a wide angle 15-mm. lens are desirable. A good tripod equipped with a tilting and panoraming head is essential if pictures are to have the quality necessary for training and educational purposes.

2. *Timing Device.* The Gilbreth clock and a vernier counter, either of which measure time in units of one two-thousandth of a minute, are available. Synchronous electric motor drives are available for several cameras which maintain accurate speeds of 500 to 4,000 frames per minute. An added advantage of the motor drive is that continuous shots are limited only by the film in the camera.

3. *Lights.* Requirements will vary widely. For most purposes, two #2 and two #4 Photofloods with light-weight reflectors and tripods or clamps will serve. Several manufacturers are now producing a bulb with built-in silver reflector which serves satisfactorily. Adequate light makes the photography much easier and is sound economy.

4. *Light Meter.* A high-quality photoelectric exposure meter is essential to assure proper lighting and exposure. Film saved will more than pay for the cost.

5. *Film.* High-speed panchromatic film materially reduces the problem of lighting and is recommended.

6. *Projector.* A hand-cranked projector with low-powered light is available and satisfactory. A stock popular-priced projector has been adapted specifically for film analysis by Professor David Porter of New York University.

7. *Screen.* A flat white surface up to 20 by 30 in. will serve. If the screen can be shaded from direct outside light to form a shadow box, the operator can work in sufficient light to permit the writing of findings. A sprayed aluminum coating on masonite will provide a more brilliant image than the flat white and is economical to make. Storage space for equipment and film are necessary.

The above equipment covers the minimum requirements for micromotion study. Full value will not be derived from the pictures unless they are made available for educational and training purposes.²³

LEVELING.—A method of leveling times on time and motion studies is shown in Figure 126.

Motion Pictures.—In recent years particularly, motion pictures have demonstrated their value as an educational or training aid. The Bureau of Naval Personnel reported that naval trainees instructed with audio-visual aids learned 35% more and remembered 55% longer. The Ohio Department of Education found in tests of a sampling of 25,000 students that

²³ A detailed explanation of micromotion study and the equipment required will be found in "Motion and Time Study" by Ralph M. Barnes.

ALLOWANCES FOR OBSERVATION TIME STUDIES

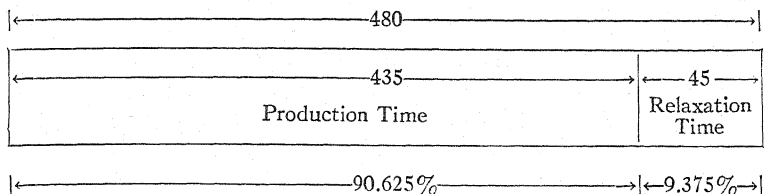
Working day—8 hours—480 minutes

Allowance:—Personal needs
Fatigue

—30.0 min./da.—6.25%

Interference
Unavoidable delays

—15.0 min./da.—3.125%
45.0 min./da.—9.375%



Technique employed — $\frac{60 \text{ standard minutes}}{60 \text{ actual minutes}}$ — normal performance

Normal performance—person of normal skill and training using normal effort working at normal “all day” speed

Leveling factors— $\frac{40}{60}$ operator — 0.74

$\frac{45}{60}$ “ — 0.83

$\frac{50}{60}$ “ — 0.92

$\frac{55}{60}$ “ — 1.01

$\frac{60}{60}$ “ — 1.10

$\frac{65}{60}$ “ — 1.20

$\frac{70}{60}$ “ — 1.29

Example: Operator studied is working at partial normal worker's speed and effort — $\frac{50}{60}$ rating

— $\frac{50}{60} = 0.92 \times \text{actual time} = \text{standard time}$

— $0.92 \times 2.5 \text{ min.} = 2.3 \text{ min.} = \text{standard}$

All time computed in minutes.

All fractional part of minutes computed in tenths or hundredths.

Figure 126. Allowances for Observation Time Studies

children instructed with the aid of moving pictures did 37% better than those taught by words alone. With but little additional cost and effort the micromotion pictures may be put in shape to provide these added values. Training an operator is easier and quicker with the aid of the movie. The operation may be seen as it should be performed, always the same whether at normal speed or slow speed. The student is able to review the operation as often as necessary, study the details until it is mastered. As a means to sell the value of motion study and make individuals motion-conscious the motion picture is unexcelled. For these purposes the films must be edited and titled. Titles may be written and sent to an outside processor for recording on film or a titling outfit may be added to the equipment. With practice and ingenuity many novel and attractive effects may be produced which add to the interest in the film. Editing involves arranging the shots in logical sequence to tell a story, cutting out unsatisfactory or excess film, and splicing in the titles. A splicer with rewinds is necessary for this purpose.

CHAPTER 18

CORRESPONDENCE AND FILING

Office Services

Management of Office Services.—Office management, as it exists in various organizations, varies greatly in function, authority, and responsibility. It is not as comprehensive as a literal translation of the title might indicate, and at the same time frequently includes many duties which could not be inferred from the title. Office management might be labeled office service management. An office manager almost invariably is responsible for more than the office services, but they are the foundation of the department on which he and his predecessors have branched out to broaden the scope of their activities.

Since these operations formed the starting point of office management, it is obviously necessary that the following pages should be carefully studied to fit these functions into their proper place with regard to the other functions of an office manager. It is necessary to remember that an office manager's position is predicated on giving service to the company for which he works. This foundation, however strong it may appear, can be very weak under a misconception of the functions and responsibilities of office management.

There are those who believe that such basic functions as mail and messenger, filing, telephone, and other services are the most important they supervise. Thus they are satisfied to manage the service sections and not only do not try to expand their duties when they should, but actually resist any effort on the part of others to enlarge their responsibilities.

Mail must be received and dispatched. Letters, orders, and papers of various kinds must be filed. Telephone calls must be made and answered. Other essential services must be performed. But it is a mistake to consider these as an end in themselves, when they should be considered as a means to an end; the end in the latter case being the maximum service that can be rendered through increased efficiency and expanded or correlated services.

On the other hand there are those—fortunately few in number—who consider anything like a mail or file section beneath their dignity. The proper perspective, of course, lies between these two extremes. These comments have been prepared with the idea of furnishing a guide or standard of comparison for constructively criticizing methods, systems, and opera-

tions without trying to create the illusion that the stars revolve around them.

While each group is treated separately, the individual must correlate them in his own mind. Think of one section in terms of how it can supplement the work of another section. Determine if this service is really sufficient, and if other departments are performing operations which could be done better or at a lower cost. Are the positions "blind alleys" from an employee's viewpoint, or are they steppingstones to better jobs?

A smooth running office management or office service management department should have the various sections so correlated that the optimum efficiency is obtained with the minimum personnel. This is possible only when there is a high degree of willingness on the part of each employee to cooperate with the other employees for a common purpose without regard as to whether or not the task bears any relation to his assigned duties.

The service sections should be the lubricant to keep all the wheels turning smoothly. The personnel should always be willing to act as spare parts or auxiliary machinery. There are few other places in an organization where there is as much opportunity to cooperate for the general good of the business as there is in an office management department.

The expansion of the services, when necessary, and the willingness to be of service on every possible occasion invariably react to the benefit of the company and perhaps of more importance it reacts to the benefit of the employees.

An office management department that is run on the narrow-minded basis of having certain set duties which it performs and then feels it has fulfilled its obligation, is bound to be staffed with a group which is in a rut in a dead-end street. The department, on the other hand, which completes its work and strives to assist other departments to level off peak loads, the department which seeks additional responsibilities and functions and is always willing to pitch in and help out, just naturally will offer varied training to its personnel and qualify them for better positions.

The advantages of using an office management department as a training ground for the organization are so many and so obvious that it is not necessary to detail them here. It is just as obvious that difficulties will crop up in establishing such a program. Here perhaps is one test of whether the office manager is qualified for his position.

When reading these chapters, hold an open mind. Sections should not be passed over because their content does not seem to apply to small offices. Size of an office force is no criterion to judge the use of office equipment. As every equipment salesman knows, a small concern may use a much larger and more expensive piece of equipment than a big corporation. The determining factor is the use to which the machine is put. The alert office manager of the small concern may have found a dozen uses for the machine and proved its necessity. The office manager of the large concern

who doesn't know and makes no attempt to find out what use can be made of the equipment continues with an obsolete system. Too much stress cannot be placed on the value of having a thorough knowledge of office equipment.

Because the basic service sections are usually simple in operation it is all too easy to forget that their aggregate expense runs into an impressive figure. As the office manager is the one who, above all, should be cost conscious, it is hoped that the following pages will furnish the genesis of at least one idea to reduce expenses, as well as ideas to improve or expand the services which are furnished to other departments of the company.

Correspondence

Correspondence Volume.—In an average normal year New York City with a population of over seven million is said to handle over eighteen million pieces of first-class mail a day. The number of pieces handled nationally every 24 hours exceeds two billion. This is sufficient indication of the size of the correspondence job.

In the aggregate, it can be roughly estimated that this volume of first-class mail is composed, for the most part, of personally dictated letters. Roughly it represents a cost to business of something over one billion dollars a day. The cost factor in conducting correspondence might well be the first approach to consideration of the problem here.

Cost Factors in Conducting Correspondence.—The cost angle as related to the nation-wide situation is of academic interest only. The cost angle of conducting correspondence as related to the individual business organization is of real interest.

Every dictated letter costs money in the form of time, materials, equipment, facilities. How much money in the case of an individual business organization, for purposes of quick computation, can readily be determined. Costs vary widely, depending upon the organization, upon who does the dictating, upon what portion of each individual dictator's time is devoted to dictating, and upon the conditions and facilities needed to produce and dispatch the dictated material. Studies have shown such costs to range from 25 cents to 60 cents per dictated letter. Instances have been found where on the average the cost of dictated letters has exceeded a dollar each.

In attempting to arrive at a quick calculation of total annual expenditure, a fairly dependable cost figure to start with is 42 cents per dictated letter—an amount found some time ago to represent a rather generally dependable over-all average. A business organization producing 750 personally dictated letters a day, in 300 working days of a year, would produce annually 225,000 such letters. At an over-all average of 42 cents each, the total annual corre-

spendence expenditure for that organization would be approximately \$94,500.

CORRESPONDENCE COST DETERMINING FORMULA.—Costs of dictated letters are determined by direct and indirect factors. This is elemental. An office manager might be satisfied to know what part of his correspondence costs are represented by those factors which can be directly charged to the function, such as salaries paid and materials used. Other office managers may wish to know the true cost, in which case items of equipment, facilities used, and the familiar items of overhead, light, heat, and so on need to enter the calculation. As a formula in determining true costs, the following can be used:¹

1. Direct costs

(a) Salaries

- (1) Dictator's time, cost per letter
- (2) Stenographer's time, cost per letter
- (3) File clerk's, mail boy's, and messenger's time

(b) Stationery

- (1) Letterheads
- (2) Envelopes
- (3) Carbon paper
- (4) Carbon copies for files

(c) Equipment and Miscellaneous Supplies

- (1) Typewriters
- (2) Ribbons for typewriters
- (3) Current dictation, transcription, and shaving of records
- (4) Dictating machine and cylinders
- (5) Furniture
- (6) Special office and mailing appliances, such as scales, sealing machines, etc.

(d) Stamps

- (1) Direct postage cost
- (2) Stamp affixing machine costs

(e) Waste

- (1) Spoiled stationery
- (2) Loss of stamps
- (3) Returned mail

2. Overhead or Indirect Costs

(a) Indirect Expenses

- (1) Rent
- (2) Light

¹ *Better Letters*, A Course in Letter Writing, Part II, Better Letters Institute, Boston, 1946.

- (3) Fuel
- (4) Taxes
- (5) Insurance

INCREASED EFFICIENCY CUTS COSTS.—Costs in factory production have been cut through more efficient methods. Costs in conducting the correspondence of an organization can also be cut through more efficient methods. There is probably no item in office operation which lends itself so readily to improvement through method study as does the one of correspondence. This is because the human element plays such a large factor in it. As one major executive remarked upon learning the true cost of conducting correspondence in his organization, “the ‘L’ in ‘H.C.L.’ could well stand for LETTERS as well as for LIVING.”

Correspondence Control.—First approach to a methods study of correspondence should proceed in three directions: (1) transcription, (2) dictation, (3) materials. These may be approached one at a time or simultaneously. First a question or analysis form covering each activity or division should be prepared.

Typical or sample questions which such an analysis form should contain are:

1. Transcription

- (a) Where is the transcription function performed?
 - (1) Through stenographers or secretaries scattered throughout the organization
 - (2) In a central transcribing department
 - (3) By a combination of both methods—a and b
 - (4) In any case is a system of measured production of transcribed material operating
 - (5) Have standards been adopted affecting letter set-up as to form, address, salutations, signatures, and so on
 - (6) And so on

2. Dictation

- (a) What are the conditions under which letters are being dictated?
 - (1) Habits of dictator
 - (2) Knowledge of subject
 - (3) Interruptions
 - (4) Best use of time for
 - needed reference
 - needed conference
 - actual dictation
 - (5) Time spent in signing letters

- (6) Time wasted in rewrites through thinking after dictation rather than before it
- (7) Are needless letters and memoranda being dictated?
- (8) Dictation medium
 - Shorthand
 - Dictating machine
- (9) Has dictator received adequate assistance through training conferences, bulletins, suggestions, etc.?
- (10) And so on

3. Materials

- (a) Quantities and quality of stationery, carbon paper, etc.
- (b) Waste through needless errors, rewrites, etc.
- (c) Standard desk equipment for materials
- (d) Useless carbon copies
- (e) Length of use of carbon sheets

Consider the results of a few methods studies under classifications 1 and 2.

TRANSCRIPTION.—Such studies in one organization led to the formation of a central transcribing section for production of all dictated material except that of top executives. The material transcribed was technical in nature, involving dimensions, figures, and so on. The general standard of production per operator as determined by installation of Vieder counter was 750 lines per day. An incentive system was installed. Production per operator increased to 1,200 lines, then to 2,000, and ultimately went higher. The higher-production operators were retained. The lower-production operators were transferred to other work. As a result of the incentive system many ways of saving lost motion were suggested by the high-production operators who wished to increase their earnings under the incentive plan. A standard desk arrangement was installed. A method was developed whereby transcribers did not read the letters they transcribed. All reading or checking was done by an assistant head. Errors, where correctible, were handled by a special operator with penalties to the ones who made them. Rewrites necessary because of transcription errors were made by the original operator, who thus penalized herself through loss of production time.

Many suggestions involving improvement in dictation technique also came from transcribers who wished to enlist the aid of dictators in helping them reach higher-production records. A spirit of team work developed between dictators and transcribers, most of whom were unknown to each other. This resulted in improved letters at less cost. At the time of a later study 26 of the highest positions in the company held by women were filled by graduates of the central transcribing section, a promotion factor which constituted an additional incentive.

In another case it was stated, "the centralization of a large quantity of our transcription and typing has effected a corresponding reduction in personnel. Our records indicate one typist is sufficient to perform the same volume of investment typing formerly requiring three girls. Previously it had been necessary to employ several temporary typists during the income tax season. This work was later included in the regular routine, with no increase in personnel."²

DICTATION.—Studies of dictation methods will reveal many possibilities for saving through increased dictating efficiency. In one case a discussion of the problem in conference with dictators indicated that interruptions hindered concentration. In another, it was discovered that needless waste of time occurred in trips back and forth to the central file room for needed reference material. By agreement in this case the time between 10:30 and 12 was reserved as dictation time. All dictators, by agreement, refrained from telephoning each other during that time. In another instance dictation booths or small rooms were set up as an approach to the solution to the problem of interruptions.

In the matter of time lost in trips to the central file room, forms were devised on which dictators could pencil or check what was needed, the form was attached to the correspondence to be answered, dispatched to the central file room, the necessary reference material was looked up by file clerks and returned by messenger service to the dictators. This resulted in increased efficiency on the part of both dictators and file room clerks.

In another case the use of properly designed forms and handwritten memoranda resulted in the elimination of much needless dictation, especially of inter-office and plant correspondence, and a general speedup resulted.

The Service Viewpoint.—While the correspondence routine, as part of office service, needs to be considered from the standpoint of cost, it should also be considered from the standpoint of service. Service to customers is a fundamental requirement. It is on the point of service to customers that conflict can arise between the office management and the sales departments. Yet there need be no conflict.

Letters, in their service-rendering capacity, build good will. They are a supplementary aid to the selling departments. As such they should be clean cut, straightforward, clear, courteous, brief, cheerful, informative. Too often the spirit of letters is smothered by meaningless phrases, involved expressions, needless words, and dead diction. More often the spirit of dictated letters is improved by the simple process of omitting meaningless expressions, circumlocutions, and dead diction. Savings often result by such omissions.

² Kathryn McDermott, "Central Transcription to Cut Letter Costs," *American Business*, December, 1944, p. 49.

In one case the inauguration of a program of letter improvement through supervision in three months reduced the average length of the dictated letter from 16.5 lines per letter to 11.2 lines per letter. The eleven-line letters were far better from the standpoint of sales aid than the sixteen-line letters. In another case the elimination of so-called "dead diction" resulted in a computed annual savings of \$18,000.

Chief among expressions of this type are:³

According to our records

We wish to advise that the contents of your letter have been duly noted

Your letter has reached us

Hoping to hear from you

Trusting this arrangement may suit what you had in mind

We enclose herewith

In making reply to your letter we would advise that

Assuring you of prompt attention

At our earliest convenience

Due to the fact that

We have your letter of the above date and in reply wish to say that

Yours received and in answer to same

The contents of your letter have been carefully noted and in reply we wish to say that

Salesmen do not talk like that. Advertising is not written in terms of such language. Correspondence should be free of it. Letters should produce the effect of talk. Ridding letters of dead diction and needless phrases will result in cutting production costs and in improving effectiveness. Improved effectiveness will render improved service to customers, and the sales department will receive the much desired cooperation and assistance.

HOW TO DICTATE.—Improved dictation habits will contribute directly to improvement in correspondence and in the methods of conducting it. This is another way of saying that poor dictation habits are at the root of the correspondence problem. Improved dictation habits will do much to correct many faulty situations which exist. Better dictation habits will have three definite results:

1. Produce better letters
2. Cut letter costs
3. Contribute to increased efficiency of operation

DICTION HABITS SUGGESTIONS.—A bulletin or card containing suggestions or instructions could be issued to dictators as "dictation helps." Issue of such suggestions should be followed up by conferences. Discuss-

³ *Better Letters, op. cit.*

sion groups among dictators, with definite discussion topics, should lead to the production of a practical dictation manual to suit individual company needs. The following is suggested as a type of bulletin or card of dictation suggestions:

PRE-DICTION SUGGESTIONS

To assist you in making your work as a dictator easier, save your time, and aid you in dictating more effective and more interesting letters.

1. Read carefully the letter to be answered.
2. Have clearly in mind the purpose of the letter you are to dictate.
3. Make a mental or pencil outline of the points to be covered in the letter.
4. In making such an outline, have in mind ideas only—not words.
5. Arrange in logical order the points to be covered.
6. In starting to dictate, select the point of contact nearest to the reader's interest.
7. If in your letter you are going to grant a request, say so immediately.
8. Break right into the heart of your letter. Waste no time in needless "lead-ups."
9. Write with the reader in mind. Picture yourself as talking to him and of his listening to your talk.
10. Let your letter be your natural self on paper. Don't be artificial or stilted in words, phrases, style.
11. Finish one thought before passing to the next.
12. Use short sentences and paragraphs.
13. Use simple language—words and expressions which the reader will readily understand.
14. Avoid being sarcastic or argumentative. Don't use slang, or be a wise-cracker.
15. Have your letters show the proper degree of courtesy. Make them dignified without being stiff.
16. Have all information collected before beginning to dictate.
17. Dictate periods, paragraphs, and any marks of unusual punctuation. It helps the one who transcribes your letter.
18. If a name has two spellings and no correspondence to accompany the dictation, spell out the name. As for example, a name like McNeal or MacNeil.
19. Think of dictating as talking on paper.
20. Read these suggestions frequently.

Yours for Better Letters for
Jones-Hartford Company

THANK YOU

LETTER APPEARANCE.—From the service standpoint "letter appearance" is important. In any program of letter improvement it should not be overlooked. Those who receive and read letters are influenced by their appear-

ance whether they realize it or not. The well-dressed letter is of no less importance than the well-dressed salesman or company representative.

STATIONERY. The stationery should be suitable to the business. A 24-pound sheet is heavy, a 20-pound sheet average, and a 16-pound sheet light. A bond may be either rag or sulphite. The bond with rag content will hold its color. The sulphite bond will become discolored with time. Paper manufacturers, letterhead designers, and quality processors are the sources to consult in matters of stationery.

COLOR, DESIGN, AND SIZE OF LETTERHEAD.—The standard color of a letterhead is white. Soft gray may create good effects for banks and financial houses. Pale yellow may suit printing and advertising businesses. Blue and other tints can convey personality effects for cosmetic and similar lines. If a color other than white is used, there should be a good reason for using it.

The design of a letterhead should be simple. All attempts to be elaborate should be avoided. The printed address on the letterhead should indicate the point to which the reply is to be directed.

The standard size of business letterhead is 8½ in. x 11 in. Professional men and professional firms sometimes use size 7¼ in. x 10½ in., as do some businesses which seek special attention through using a different size. In general such a strain for distinction might be a disadvantage rather than an advantage. For general use the standard size is best.

STANDARD LETTER FORMS.—A company should have standard letter forms for the setup of its letters. Instructions covering matters of form should be prepared and produced in manual form for information of secretaries and transcribers. Standard letter forms will avoid the time usually wasted in discussion and in attempting to follow the tastes of individuals.

A manual on letter form, an important tool in training, should include every item dealing with the subject of letter set-up as :

1. Block, modified block, indented, overhang indentation
2. Reproduction of a standard form of company letter
3. Forms in typing the:
 - Heading
 - Date
 - Address
 - Salutation (if any)
 - Body (margins)
 - Complimentary close (if any)
 - Company name (position and how written)
 - Signature and titles
 - Enclosures and reference
4. Carbons (number and quality)

5. Typing

Spacing

Touch

Erasures

Strikeovers

Ribbons

For instance an instruction should be included that in typing dates the "rd," "nd," "st," "th" should be omitted. Consider the amount of time consumed in writing the following date several hundred times a day: January 15th, 1946. Next consider the amount of time saved in cutting that date to Jan. 15, 1946, omitting the terminal punctuation. How many needless strokes are saved without sacrificing anything to courtesy or of service to the reader. A ruling that all months be abbreviated in dates except the months of May, June, and July will save thousands of needless typing strokes where the letter-writing volume is large. It will also result indirectly in quickest service to dictators. This is a single, simple illustration. Many others could be cited.

Special-Purpose Letters.—The factor of rendering service to customers is deserving of special consideration in the writing of letters of acknowledgment, quotation, adjustment in the handling of complaints, credit-granting and collection letters, various forms of information-giving sales and service letters.

Each type of letter is deserving of specialized study. All come into the office management picture at the point where "office service" and cost of operation are concerned. In dealing with these special classifications, the office manager or office management department can become a stimulating influence, guide, and indirect creator of shorter, more effective letters for the company, with direct influence upon the operating cost of producing such letters. In considering all forms of special-purpose letters, from the standpoint of operation costs, attention should be paid to all instances of needless letter writing of which there is a great deal.

Some assistance in this direction may be derived in the preparation of form paragraphs. There are many recurring situations which call for correspondence of an identical nature. In such cases, it may be an economy in time and cost to anticipate these situations by the preparation of paragraphs or complete letters which may be used as occasion requires. In many companies it is the practice to build up a large number of form paragraphs or form letters. Each dictator and each transcriber is provided with a set of these forms. Oftentimes the dictator merely notes on the correspondence to be answered the number (or other identification) of the form paragraphs to be used in the order which they should be typed. In other cases, certain paragraphs are dictated and others are copied from the form paragraphs.

Training Activities.—A training program has numerous advantages. Chief among them are :

1. Acquainting dictators and transcribers with company policies and systems
2. Reducing the time of the break-in period for new employees
3. As a refresher in keeping the letter-writing employees informed of changes in policy or system
4. As an interest creator
5. As a vehicle for increased efficiency and continued improvement through extended study

FORMS OF THE TRAINING ACTIVITY.—Improvement of the correspondence system and of the letters produced by the system can be accomplished through the employment of any one or all of the following means : ⁴

1. Individual conferences
 - Dictators
 - Secretaries and transcribers
2. Group conferences
 - Departmental
 - Inter-departmental
3. Appointment of leaders of group discussions
4. Occasional talks on the subject by a capable speaker
5. Group instruction on definite problems
6. Study of a well-prepared company course on the subject of correspondence
7. Service manuals for dictators containing informative instruction, answers to questions, examples
8. Service manuals for secretaries and transcribers containing instruction on matters concerning writing of company letters, set-up, and so on
9. Company wordbook containing vocabulary of specialized words which apply to the particular business.
10. Publication of a correspondence bulletin
11. An organization chart showing in detail various functions of the correspondence service divisions
12. Good examples of well-written company letters

A well-constructed and well-conducted training program for employees who carry on the correspondence activity will result in producing better letters at lower cost.

⁴ *Better Letters, op. cit.*

Organization and Operation of the Files

The Filing Activity.—The filing activity in any office functions at two stages in the flow of mail from its arrival to its final disposition. These two stages are:

1. Before action by addressee
 - (a) Sent immediately from mail department for attaching previous correspondence and then to addressee for action
 - or
 - (b) Sent to addressee, who may call for previous correspondence prior to dictation
2. After action by operating department for current custody, subsequent transfer and final destruction

As a unit serving all other departments, the file section should be centrally located; it should be furnished with good equipment and time and labor-saving devices; it should be staffed with clerks trained in the highly-specialized function that record-keeping has become; and it should have well-defined routines which are outlined in detail in a manual of procedure.

The advantages of centralization of control are many, chief among them being:

1. It places responsibility on one person.
2. It eliminates duplication.
3. It provides for better quality of work and greater speed.
4. It provides for greater use of filing facilities.
5. It saves time.

In the opinion of management engineers, however, few companies have completely centralized files. There are always subsidiary files for the convenience of users, and there are certain records which are best filed in the department where they originate—such as personnel records, tax papers, credit material, etc.

These departmental files, however, are often placed under the functional control of the central file supervisor, to insure uniform equipment and supplies, arrangement according to standard procedure, and transfer at definite and prearranged periods.

Layout and Equipment.—The office manager, having determined from the layout chart where the file section will be located, must give consideration to the following physical factors which affect the work of the section:

1. Adequate space
2. Proper lighting

3. Suitable equipment
4. Quiet atmosphere
5. Proper heat and ventilation

The file supervisor can give helpful suggestions in planning the economical layout of the file room and the arrangement of the equipment with careful thought for comfort, lessening of fatigue, and proper flow of work within the section.

Filing equipment houses and office layout specialists are prepared to give expert advice on file room layouts.

One feature of the layout which is often overlooked is provision for desk, table, or counter for users of the files. It is often necessary for a file-user to make an extensive study at the files and space should be assigned for this purpose.

Equipment.—It is of utmost importance in a file section that equipment, supplies, and forms be standardized to lessen expense and to promote efficiency. Color, size, and material vary somewhat in the different makes of equipment and their indiscriminate use results in an untidy file, with much waste space.

The purchasing agent should have the catalogs of all equipment companies, and the office manager and file supervisor should be fully informed of the new developments in the field through office equipment journals and attendance at business shows.

Efficiency requires modern, labor-saving, time-saving, comfortable, and sturdy equipment, good quality in folders and cards, and adequate guiding in files and card indexes.

Sorters should be considered as necessary equipment in file sections. Tub sorters are suitable in small sections; flat sorters become necessary when the volume of material coming to the files is sufficient to justify the purchase of such equipment.

A supply cabinet should be provided for the storage of folders, guides, cards, labels, charge cards and stationery so that a supply of these items may always be on hand.

File stools, reference shelves, stapling machines, staple removers, rubber thumbers are important accessories, although often overlooked by those providing the working tools of the section.

The Filing Personnel.—Great care must be exercised in the selection of a file clerk. The day is past when the requirements were simply that the file clerk must know the alphabet. In addition to the expense of hiring and training a clerk, there are the resulting costly errors that an inefficient and careless clerk makes.

There are filing schools in the larger cities, and courses in filing at most universities, where the subject is thoroughly dealt with, both in training

beginners and developing supervisors in the profession. There are excellent books on filing which can serve as a basis for training clerks on the job.

While it is not as simple to test the ability of applicants for filing positions as for typing and stenography, it is possible to test their ability to arrange names in alphabetic order by a card test. The file supervisor should give this test in the file section after the applicant has been interviewed by the personnel interviewer or office manager.

The chief characteristics of a good file clerk are:

1. Accuracy
2. Alertness
3. Initiative
4. Neatness
5. Speed
6. Tact
7. Memory

Some of these qualities can be determined by the card test, others by a study of previous business and school records, and the more abstract but equally important character requirements by aptitude and attitude tests. The cost of poor selection greatly exceeds the cost of such tests.

Alphabetizing rules should be standardized, and beginning clerks should know them thoroughly before filing material. The training period should be carefully supervised. It is common practice in a file section to start new clerks on preliminary tasks until they become familiar with the work, are letter-perfect, and can be trusted to place papers in the folders. The manual of procedure acts as an excellent training medium.

If the office is small and there is but one file clerk the filing function requires even greater control by the office manager. The file personnel should be encouraged to develop their abilities through courses in filing and membership in filing associations.

Filing Systems.—There are five basic filing systems:

1. Alphabetic
2. Numeric
3. Geographic
4. Subject
5. Chronological

The chief consideration in the selection of a system is simplicity. Select the simplest system that will answer the needs of the business and effect changes only when the needs of the business require such a change.

Ninety per cent of all correspondence is customer correspondence, and in most cases the alphabetic system will serve adequately and admirably. The

geographic system is used only where a territorial distribution of material is desired. The numeric system is used mainly where a project or client is assigned a number as identification, and this number is used in all dealings on the project or with the client.

The remaining 10% of material received in the file department covers the operation of the business. This material is usually filed by subject, has a cumulative value and requires greater care in handling. To the busy executive, whose interest is in the development of business, such a topical file is indispensable.

Routines in Filing.—The routine of a filing section should be standardized, with the rules known to the file users and the filing staff.

Determine the “one best way” for handling all operations, instruct the clerks in the procedure, and insist that the rules be observed. Make changes *only* when an organizational change affects the work, or where a change will effect an economy in time and effort.

The routine of a filing department comprises :

1. Collection of material
2. Time stamp, counting, arranging in file groups
3. Marking, cross-referencing, follow-up, stapling, rough-sorting
4. Sorting
5. Filing
6. Serving file users
 - (a) Charge system
 - (b) Recharge system
 - (c) Telephone requests
 - (d) Matching incoming mail with previous correspondence
 - (e) Follow-up
 - (f) Delivery system
7. Transfer

1. *Collection of material.* Material to be filed is collected from letter trays on desks of executives and from one central point in departments, at least twice a day, by junior file clerk or messenger boy. It is advisable to use a collection bag equipped with pockets for each collection point, so that irregularities can be traced to those responsible for them.

2. *Time stamp, counting, arranging into file groups.* Most companies require that incoming mail be answered within a definite period of time (24 hours to one week) and the file section stamp serves as a check on this rule. It also indicates the date on which the file section assumes responsibility for the material.

Mail is then counted for volume report, arranged in file groups, such as customer file, invoice file, subject file. In this arrangement, it is checked

for an "O.K. to file" notation, as material not infrequently reaches the files before all operating details have been completed.

3. *Marking, cross-reference, follow-up, stapling, rough-sorting.* The file indexer marks material with colored pencil, underlining or checking the file caption. She reads each letter in order to route it to any other interested person in the organization, to make necessary cross-references and follow-ups, and to insure that all items discussed in the letter have been handled. Pins and clips are removed, and letters of more than one page are stapled. She also rough-sorts material for the next step in the procedure.

4. *Sorting.* This sorting arranges material in strict alphabetic, geographic, or numeric order for the final step of filing. A tub sorter equipped with 25 guides is sufficient for a file of 320 alphabetic subdivisions. For larger subdivisions, use one-tenth as many guides in the sorter as there are guides in the file.

5. *Filing.* When filing, a reference shelf should be used to leave the hands free for lifting folders out of the file. The clerk should check for previous letters mentioned in the material she is filing, to insure placing material in the proper folder. If the letter is not in file, the file supervisor should make an effort to trace it.

6. *Serving file users.* Persons desiring material from the files may telephone, send a messenger, or come personally to the files. Clerks taking telephone requests must write legibly, have good hearing and pleasant voices.

Most file sections have a simple requisition form to be filled out for each item desired. If this is a duplicate form, one copy is placed in the pocket of the "out-guide" and the second is filed by due date to check the return of material to file. File users should be cautioned to write legibly, as much time can be lost deciphering carelessly written slips.

All material lent out must be charged to borrower. Folders are charged out by means of an "out-guide" or "out-folder." Single letters are charged out by means of a "substitution card." This procedure must be rigidly observed, as it takes but 20 seconds to fill out the charge record, and hours to locate material which has not been properly charged out. These forms show name of borrower, date borrowed, and date of letter, or name of file.

Borrowers passing material to other persons should so inform the file section. A recharge form is sometimes attached to material sent from file section to aid the file user in following this procedure. Some offices require that a file must be recharged through the file section so that any recent material which has come to file may be added.

Service should be speedy. If departments are at a distance from the file room, the use of dumbwaiters or pneumatic tubes should be considered.

Some file sections receive the incoming mail to match with previous correspondence before it goes to the person who will handle the transaction.

This places a great responsibility on the file section. It is very important that this be handled with dispatch, with not the slightest chance that this material can be confused with material to be filed.

To avoid confusion resulting from material being held in departments, the file section should be prepared to follow up items for the various departments. Members of the staff need only to mark a future date in the upper right-hand corner of a document, and the file section, through a tickler system, will return the material on the due date.

7. *Transfer.* File sections occupy more space per clerk than other departments. In order to keep the section overhead within bounds, it is necessary to establish a definite plan for housing only active records in the current files. Transfer of inactive records effects economy of space, equipment, and labor.

Material is usually transferred at a definite period and according to a standard method. The period and method are dictated by the nature of the business, space limitations, frequency of reference to the transferred material, and the accessibility of the transfer room.

In large companies, the transfer room is supervised by the central file supervisor, with a custodian or archivist in constant attendance. Where there is no regular attendant, the room is kept locked and the filing section staff handles requests for material. The same rules apply for borrowing material from inactive files as from the current files.

Three things affect the length of time old records must be kept—the nature of the business, the Statutes of Limitation and the type of record. In order to prevent material from being held beyond its period of usefulness, a retention schedule should be worked out by a special retention committee. This committee may be composed of a company executive, the office manager, the file supervisor, and company counsel. This committee should work with the various department heads in order to work out a successful and safe retention period for each type of material.

Destruction of material can thus be handled automatically, by strict observance of the period set by the retention schedule. It is wise to send notice of intention to destroy to the officer in charge of the destruction of records in case recent developments have affected the retention period of the item. Destruction may be done by cremation, shredding, or similar method.

Many companies are studying the use of microphotography for inactive records. For records which must be retained for long periods of time, the saving in space and equipment effected through this medium is appreciable. However, many business firms are reluctant to expose themselves to the risk of loss which may result in the event that a microphotographic copy is deemed unacceptable as evidence in court action.

A detailed discussion of records retention and destruction including microfilming will be found elsewhere in this chapter.

Manual of Filing Procedure.—All well-organized, progressive file sections, whether large or small, maintain a manual of procedure. In a one-man section, it is an absolute necessity, as the absence of the file clerk calls for a substitute, whose lack of familiarity with the standard practice requires written instructions for every step of the procedure.

Such a manual also serves as an excellent medium for training new clerks, as the worker is assured of clear, concise, authoritative instructions about her job; it can be studied as often as desired; and it relieves the new clerk of constant questioning, and the supervisor of repetitious answers. As a reference handbook for the entire filing staff, the manual is invaluable. The psychological advantage of well-defined duties, responsibility and authority cannot be overstated. To the office manager the manuals of procedure of all departments show up duplications and assist him in coordinating the work of the entire staff.

These written instructions must bear the stamp of approval of the officer in charge of the filing function; they must be kept strictly up to date, and they must be used. The effectiveness of the entire staff can be greatly increased through the installation and use of this frequently slighted instrument. Work which is properly planned and scheduled, with a manual of procedure giving standard-practice instructions, requires a minimum of thought and supervision for successful accomplishment.

The manual should contain :

1. Description of the function and detailed explanation of every step of the work
2. Division of work
3. General rules for clerks
4. Regulations for file users
5. Rules for alphabetizing
6. Samples of supplies and forms
7. Charts

Control of the Filing Function by the Office Manager.—The office manager should require of the file supervisor a weekly or monthly report on the activities of the department. It is through this means that he is able to determine the need for additional clerks, as well as to estimate the needs of the department in respect to equipment, supplies, and space.

The volume report is a daily record of papers sent to file, requisitions filled (and those not filled, with reason for non-fulfillment), follow-ups filled, etc. Some companies set standards of production and efficiency and each clerk is required to keep a production report. Individuals do more work because they know that their production is measured and they do better work because concentration reduces errors. The office manager should make audits of the file section periodically at unannounced times. Allowance

for error in a well-organized file section is 1/10 of 1%. This audit may be a spot check or a complete examination, with the file supervisor conducting the review of material.

Day Files.—Many companies follow the time-honored practice of requiring that a second copy of all outgoing letters be sent to file. This is usually on paper of a distinctive color. These are filed chronologically and serve a very useful purpose in locating material when the text of an incoming letter is ambiguous or too brief to enable the matching of the correspondence to which it applies. The extreme usefulness of this file justifies the small expense of upkeep.

Summary.—This section has endeavored to set forth in abbreviated form the essential problems and methods of file room operation. It must not be assumed that a single type of file system will suffice for a large business, nor is it realistic to say that the operation of the file section is without difficult daily problems. Prompt and efficient service to those who make use of the files is an important objective of file room operation. The personnel and facilities of the unit must be such as to provide this service. Executives frequently call upon the file room to find correspondence or papers which they cannot accurately identify. In most all cases their demands for service must be met promptly and they do not readily accept excuses for delays. It should be pointed out that in choosing equipment required by the file room, the methods-work simplification systems unit should be consulted. There are many technical matters to be decided and it is important that such things as the selection of guides, folders, fastening devices, and many others be made with such considerations in mind as durability, cost, space consumed, etc. It happens frequently that those who set standards for forms, equipment, and supplies in other parts of the office can contribute greatly to the proper selection of these items for use in the file room.

The smooth operation of central files is not altogether a matter of good location, organization, equipment, and operation of the file room. It depends to a very great extent upon the willing cooperation of those who make use of the files. They must be educated to understand the problems and difficulties involved in filing and must be shown how they can and must cooperate in maintaining high grade filing services as well as complete protection for the records.

Filing—Problems and Economies

Development of Filing Procedures.—In the early days of business, the records of many merchants consisted of two spindles, one of which carried the unpaid bills, and the other the paid bills. When the "paid" spindle became too full, a batch of the older of the "paid" bills was thrown away.

There were relatively few letters written and very few records prepared or kept. The records retained were usually bound books, either ledgers or supporting records such as cash books, journals, etc.

Some of the business houses of that era had their few forms printed with copying ink. The ink used in filling out these forms also had copying qualities and through the medium of what was known as a letterpress these forms (such as order forms) were copied into books on tissue paper, before mailing. The same practice held for the few letters that were written.

With the advent of the typewriter and the introduction of carbon paper, coupled with the phenomenal growth in size of business, the delegation of authority, and the resultant division of responsibilities, it became customary to save practically all business papers with little consideration of their future value. The lines of authority and the assigning of duties were not too well understood. It frequently happened that the individual felt that all business papers should be saved so that he might be able to prove that his handling of a matter was a correct one, should questions arise, or if it was necessary to recall all that had transpired with reference to a particular transaction.

At that time, the cost and the problem of labor, equipment, and filing space were not as important as they are today. In addition, business was expanding and much of that which was being attempted was new, and the fear of lawsuits was always present.

These are some of the factors that resulted in filing practices, which, in the opinion of present-day students of the subject, placed far too much emphasis on the filing and retention of *all* correspondence and *all* other business papers.

There is no cure-all for every filing problem. Each problem is different and must be considered individually. The purpose of this subdivision on files is to make the executive give his own filing problem a little special thought. The filing section is very important to any organization, be it large or small. It is astonishing what can be accomplished when an office is provided with a well-thought-out filing routine which develops easy and quick access to the wealth of information hidden in the files.

The following observations may be helpful in improving company files. The larger the office the more time it will take but large or small the principles underlying sound filing procedures are the same.

Statement of Principles.—The following principles form the basis of an adequate but economically operated filing system:

1. *File only papers that have value.* Many businesses are now looking at this problem of filing realistically. The natural outcome of this scrutiny is the creation of a trend toward the filing of only those business papers which, it is believed, may have future value to the enterprise, or which may

be required by law. Business letters and papers should not be filed or retained beyond the point where they have value.

2. *Purposes served by files.* The only purpose served by filing is that of so arranging papers, records, documents, etc., that they may be found if and when needed. The frequency of the finding operation and the importance attached to finding a paper or document, and the time usually allowed for this finding should determine the amount of time, effort, equipment, etc., that can justifiably be expended in filing the media in question. (As an exception, a number of government departments and bureaus require that certain records be kept for varying periods of time usually to facilitate possible government inspections, even though they may have outlived their usefulness to the business or enterprise.)

3. *Items of cost in filing.* Items one must consider in determining the cost of the filing operation are the cost of labor, equipment, filing supplies, and space occupied. The total cost of these items must be measured against the values derived from having the records available. In the usual course of events it is a wrong approach to file just in order to establish *an alibi* or to clear one's self of blame.

4. *Filing methods and operations must be adjusted to changing conditions.* There is nothing more definite in business than change. That which is an appropriate solution to a problem of today may be all wrong six months or a year from now. On the other hand, changing conditions or circumstances may make it advisable to adopt a method of operation today that was out of the question a year ago. This point must be kept clearly in mind when filing is under consideration for it has a bearing on the value of files after the transaction is closed.

5. *Provide good procedure and equipment.* After it has been decided that a certain type of media is to be filed and retained, it is important that the best filing procedure be adopted and all filing aids in the form of desirable equipment be procured so that the problem of filing and finding the material in question when and if needed is reduced to a minimum. All material that is filed should be so filed that it is readily available when and as needed.

6. *File nothing without a "destroy" date. Inspect once a year.* To forestall the possibility of undue accumulation of files, they should be carefully inspected at least once a year by one who, with a managerial approach, is in a position to consider the whole subject broadly.

A good rule to follow particularly in the filing of records and reports is that no media should be accepted for filing, with the exception of a few such records as the general books, without definite destroy dates being indicated for the guidance of the file clerk. The usual practice is to carefully analyze each type of media that is to be filed and establish by agreement with all concerned the period that it is to be retained. It is usually good practice to have

some member of management sit in on the decisions reached with reference to retention dates to forestall the possibility of inadvertent destruction of vital company records. A committee, or the file supervisor, under such a procedure, is charged with the responsibility of destroying each type of media at the expiration of the stipulated retention period. Retention dates for each type of media being filed should be reviewed at periodic intervals, say, every two years.

7. *Limit equipment.* It has been found desirable in a number of instances to limit the quantity of filing equipment available to a dictator or a department. This is particularly true with reference to correspondence as a curb to the natural instinct of many employees to accumulate and to be able to justify their actions and prove themselves right.

The File Problem.—Every organization has had a troublesome problem in connection with its file operation—many still do. There are many reasons why the file problem is so general. One reason is that there are no real standards against which actual performance can be measured and no way of determining filing effectiveness until trouble arises generally, because an important paper cannot be found. The file problem now becomes acute and almost immediately an order is issued to do something about it promptly. As a rule the line of least resistance is followed. To solve the problem new filing cabinets and new index equipment are provided. Instead of a solution, the purchase of new equipment may raise the morale of the file operators, but, as a rule, it does not remove the trouble.

As a matter of fact the loss of an important paper may not have been the responsibility of the file room. It may never have reached the files and, if it did, it may have been withdrawn and never returned. The truth is that the file organization usually does a good job considering the conditions under which it must operate and the place assigned to it in the organization.

The attitude of executive management toward filing operations is, most times, indifferent and unimaginative. There is little appreciation of the very important role this function could play in the economy of their office routine. A general assumption is prevalent that keeping papers of record is a necessary evil and that they are kept solely for the protection of the organization. A further assumption is that this protection must be had at the lowest possible cost. It is not difficult, therefore, to understand why so many files are just dead storage. All current papers of record will not be found in such files. They are often found in some department or on some desk for possible future reference without regard to the needs of other departments or individuals for prompt reference to them. A search will usually discover the wanted papers. This happens not once but many times a day.

Under such conditions, departmental or individual files may be separately established. Perhaps the latter is more wasteful than the former but, in

any event, both, with few exceptions, are costly duplications and create altogether too many places to look for a wanted paper. Such a situation is costly in the extreme because not only the search time of the file operators is wasted but the time of office personnel as well and, still more important, the speed of customer contact through the written word (which is the most common form of contact) is reduced. Such weaknesses cannot be corrected quickly. An adequate file routine cannot be established overnight—it is not that easy—too much basic data must be gathered and studied. Further, it is rarely practical to install a complete new routine all at once. The office personnel cannot assimilate it that quickly. The resulting confusion may create antagonism on the part of the personnel. This will make it difficult to obtain their cooperation and may unnecessarily delay the building of that confidence in the files which is essential to sound file operation.

Confidence in the Files.—What is meant by confidence in the files? It means a full appreciation on the part of all office personnel that the file is the best and safest place to send all papers for quick and easy reference by anyone who has need for them. It means that no one will retain a paper longer than is necessary for the immediate reference because it can be had again quickly, if needed. Confidence in the files exists when department heads ask that their papers be incorporated into the main file operation. It is not always practical to centralize all filing. It may be more desirable to locate confidential and certain other files in the user's office. In general, papers relating to orders, correspondence, invoices, purchasing records, credit reports, export, etc., may be kept in central files. Some classes of papers should be kept separate. In addition, the follow-up reference routine may also be carried on within the main file operation.

File Reference.—The degree of reference to the files will give a good indication of the adequacy of the file procedure.

The degree of reference may vary from 1% to 30%. By this is meant that for every 100 pieces filed from 1 to 30 pieces are called back for reference. A piece or file may be made up of several sheets fastened together and a piece or file may be called back for reference more than once. If the reference to the files is more than 20% the file procedure is probably good. If reference is from 10% to 20% the file procedure offers an opportunity for improvement. The smaller the per cent of reference below 10% the greater the likelihood that separate and individual files exist. When the reference is close to 1% it is likely that the main files will be only dead storage.

An alive, active, neat file operation is an important, if not the most important, customer contact service operation in the entire office. The cost of such an operation is difficult to figure, for in a way it is intangible, yet when consideration is given to the fact that the time of many in an office

may be saved by the intelligent and efficient operation of a few on the files there may be no net cost.

Gathering Data for Analysis.—The fact that the data gathered and analyzed may result in the partial or complete reorganization of the files suggests that the individual or committee assigned to the task should be competent and possess the necessary authority. Very little progress can be made in the study or very little value will be derived from it unless it has the interest and support of top management. Usually, this group of executives shows little concern about filing unless costs become excessive or individuals of the group fail to receive satisfactory filing service. Time and effort can be profitably spent in bringing to top management a full realization of the importance of the file operation. In this way their interest and cooperation may be obtained.

Information must be obtained on the following three points:

1. Determine classes and kinds of papers that are to be filed. Some very interesting data as to duplication of effort is usually uncovered in this study.
2. Determine volume, that is, number of pieces or papers to be handled each day.
3. Determine the manner in which requests for file material are made. This may be difficult to ascertain because there is no set routine to be followed. Usually, if there is a sound routine and it is understood by those who use the files it will be followed.

In the process of gathering the above data you will have learned in detail the present routine, the location of various papers, how they are kept and what is done with them when the need for active reference is past. At the same time, the equipment now in use and its condition for continued use will have been noted.

The analysis of the study may now be made. At this point, outside help from a qualified person or organization may be secured to assist in the analysis of the data and in the preparation of a plan. The asking of such advice should not be based on an understanding or tacit agreement that any so-called standard index system will be purchased. It should be on a professional basis and a reasonable fee should be paid for the service. On this basis, it is entirely proper to employ the services of more than one person or organization, for recommendations can vary widely and the best is desired.

It is important to decide how long each of the different kinds of papers should be retained, first in the active file and second, after they are transferred. Too many different periods of retention should not be established. Three periods are usually enough for an active file, e.g., six months, one year, eighteen months; for materials in the transfer files, one year, three

years, six or seven years, ten or twelve years, permanent. If requirements compel the permanent retention of a large volume of completed records, it may be well to investigate the advisability of microfilming such records. This same consideration might be given all records which must be kept for over six or seven years.

Introducing the Revised Plan.—The following suggestions may be of value when the time comes to install the revised file plan.

1. Central filing does not mean that all files are brought together in one location. It means rather that files, wherever located, are under a central controlled method or plan of operation.

2. To start the development of the main or general files choose two or three classifications that cover papers which will be called for reference by the greatest number of departments. Main or general files should not be started until fully adequate service can be rendered.

3. Provide sufficient space and a convenient and pleasant location for the file room, including nearby space for first transfer records. Provide for expansion of file facilities as more classifications gradually are included in the main file operations.

4. The filing cabinets used can be of any good standard make. Failure to provide ample filing space will result in costly and unsatisfactory attempts to operate overcrowded file drawers. Plan to have left in each drawer at the end of the active file period some unused space—for an average, at the start, figure 20% excess over actual need. The number of sheets of paper that can be filed in a standard vertical file drawer depends on the thickness of the sheet and on the neatness in attaching papers and the neatness of the filing. Allowing for necessary guides, folders and working room 3,000 to 4,000 pieces may be filed in a standard file drawer.

5. It is well to avoid the installation of tricky mechanisms, at least until their over-all value can be determined. Most of these accessories will do what is claimed for them but their use is limited and some even create the need of costly extra operations otherwise unnecessary.

6. The indexing plan should be simple and direct. As more mental effort is demanded in filing a paper, there is a corresponding increase in the possibility of error in the time taken by the filing operation. Most employees are accustomed to looking up names in a telephone book or a directory. The names in such books are in direct alphabetical sequence. The indexing of the files should and can follow the same plan.

7. The tabbing of guides and folders is very important and should be carefully considered. At the beginning, tabbing must be so planned that it will not only take care of the two or three classifications started with but also will permit the addition without confusion of other classifications which, from time to time, may be added.

8. The use of colored folders should be restricted to identification of the various classifications.

9. Because the operating requirements vary so widely it is difficult to set standards as to how many and what type of guides should be used. It is obvious that they must be strong and durable.

10. It would be wise to observe these rules as to the use of folders :

- (a) They should be of good quality. Folders that tear easily or tabs that break off create messy looking files which invite careless filing.
- (b) Folders should not be permitted to become overcrowded. Break the file into two or more folders chronologically, if necessary.
- (c) Be sure the folders are all the same height and that the tabs are in proper position.

11. A sorter or distributor should be used in every large or small file operation. This device permits the quick, initial sorting of file matter delivered to the file. In a large file operation there may be two steps in sorting ; the first, to particular sections of the file itself ; the second, sorting within the file section.

In some file operations the sorter is used as a temporary file. Sorted matter is retained in the sorter for several days or for as long as a month. Obviously, in such cases, two files are being used in the file operation and if the reason for this delayed filing is traced, inadequate and poorly planned indexing in the file drawers will be found.

The best and quickest method of filing a request for file material is from the file drawer itself, provided it is equipped with a properly planned index. Sorters should be cleared at least once daily and it may be better to clear them two or three times in order to improve the speed of reference.

12. **Correspondence.** A letter should be thought of as an economical substitute for a conversation. In other words, it usually serves the purpose of an inexpensive or convenient means of conveying thoughts or information. If the subject matter is such that no record of the conversation would be made if it were handled by word of mouth, there is no justification for the preparation of a copy of the letter and the eventual filing and retention of that copy. The responsibility for the filing of correspondence must rest with the dictator or with the originator of the letter.

As a general statement it can be said that if a question is asked in a letter received, there is no need to make a file copy of the letter answering the question or of filing either the letter received or the copy of the answer unless the matter is of such importance that a record would be made of it if it had been handled in conversation. The retention of files of correspondence after the matters in question have been closed to the satisfaction of all concerned should be the exception. The bulk of the correspondence kept in the files should cover matters not as yet handled to completion.

Filing Personnel.—There is an age-old practice in many offices of assigning the beginner to the files pending the opening of some other job. Such a practice can hardly be expected to create an interest on the worker's part in the operation of the files.

In well-organized and planned offices a real effort is made to determine the qualification of the individual for the position of file clerk. The qualifications are comparable to those of a secretary. In most offices the position of file operator should be up-graded with compensation corresponding to secretarial ratings.

The above is a brief résumé of suggestions for procedure to be used in checking present filing routine and also in making a start in its improvement. Only the filing of original letters, orders, credit reports, and the like has been referred to. When the investigation of the file operation is finished it may prove to be well worth while to examine filing procedure concerned with transcribed records, cards, and equipment.

Preservation or Destruction of Records

The Problem of Record Retention.—That there is growing need for the establishment of methodical retention procedures is emphasized by the ever-increasing accumulation of records and present inadequate methods of retention, preservation, and storage. The clerical mechanics of business produces a seemingly endless flow of records. These will inevitably retard the normal workings of the administrative and clerical staffs if allowed to accumulate indiscriminately. Mechanical accounting machines and devices have increased greatly the volume of records. A flood of records induced by increased efficiency and specialization has reached the proportions of a tidal wave. It is now physically impossible to retain all original records of a business, even were it desirable to do so; yet the great number of records that must be preserved because of historic, economic or legal value soon makes physical facilities inadequate. The attitude of business toward record retention has been changed in the last decade by two primary considerations: (1) the larger size and complexity of the business unit, and (2) increased interest in regulation by governmental bureaus.⁵ As a concomitant of this, businessmen now realize that more systematic procedures of record retention are necessary to guard against future detrimental and burdensome restrictions. Today records should be kept longer and facilities provided to make these records readily available for inspection and reference.

⁵ Includes, among others, the Interstate Commerce Commission and other federal public utility regulatory commissions, state public utility regulatory commissions, requirements under the Federal Internal Revenue Code, Fair Labor Standards Act, Walsh-Healey Act, Securities and Exchange Commission, Social Security and Federal (Old Age and Survivors Benefits) and Federal Unemployment Insurance, State Unemployment Insurance Acts, and War Contract Renegotiation and Termination.

Records,⁶ accumulating over a long period of time, reach considerable volume and without standardized procedures for record retention and periodic destruction may reach impossible proportions. A systematic filing and storage procedure is an apparent need when at one extreme are the old-fashioned, pen-posted books of irregular size and, at the other, the modern machine-accounting media of uniform size. Between these two extremes are the multiplicity of records of standard and non-standard sizes and shapes which require careful attention for economical filing and storage arrangement.

Proper record storage is extremely important to both small and large businesses. A large business should encounter little or no difficulty as the storage procedure is usually handled by trained personnel under the direction of a competent supervisor. In the smaller businesses, however, it may become a part-time assignment, which is handled by different employees, depending on which one has unoccupied time. This results in an inconsistent procedure, to which may be added the handicap of untrained supervision and the lack of uniform and efficient methods. In either case, it is essential to develop comprehensive written standard procedures. This is a necessary preliminary step and marks a real beginning in the disposition of useless records.

Administrative Objectives.—Four primary administrative objectives form the foundation of a successful program of records retention. First, the centralized purchase of all papers, forms, and bound books with the concomitant designing and printing for use in current business transactions (this involves consideration of the relative importance of records, and their durability, permanence, and uniformity of size for retention). Second, assignment of current filing duties to trained employees, and development of necessary instructions for standardization purposes. Third, protection against fire, theft, damage by vermin, and other agents of destruction. Fourth, proper and efficient use of all available space and filing equipment by the adoption of a systematic procedure for the periodic disposal of records not required in current business transactions or for historical reasons.

Need for Standard Procedures.—Delegation of final authority for selection of the records to be retained and those to be periodically destroyed is important. A committee for this purpose seems most desirable. Such a committee, sometimes known as the "Retention of Records Committee" or the "Committee for the Destruction of Useless Records," is comprised of

⁶ The word records, as used herein, denotes any paper on which appears written information of whatever nature, relating to the transactions and events of a business enterprise. The word is not limited to the formal departmental documents, books, accounts, and memoranda.

members representing the departments most interested because of the nature and quantity of records to be retained or destroyed. At least one major executive of the company should be a member of this committee so that no decisions may be contrary to the long range policies of the company. The legal advisor as well as the chief accountant may be members also because of their fundamental interest in the problem. Other department heads, not members of the committee, should be consulted when their departmental records are under consideration. The functions and responsibilities of this committee should be known so that once retention and destruction schedules are established no deviations will occur until revision or alteration of the schedules is approved by the committee. The committee must assume responsibility for formulating procedures and require full compliance with the policies adopted for record retention. These responsibilities include (1) the adoption of fixed schedules for retention and destruction purposes, (2) providing a depository so arranged that the records are available for ready reference, (3) periodic transfer of inactive records to a depository and the uniform storage of these inactive records under the requirements of the retention schedules and elimination of extraneous or useless records at the source, (4) periodic and actual destruction of useless records at stated times together with a periodic elimination procedure for records retained to meet statutory or regulatory requirements, and a systematic recording of the ultimate destruction of these useless records. Flexibility must be provided, under direction and approval of the committee, for periodic changes or alterations of the schedules of retention to meet changes in current requirements.

Uniformity in selection, classification, retention, and ultimate disposal of all useless records will result from the adoption of a standard procedure. Without definite written instructions the standards will be unprotected and susceptible to unauthorized modification. Once the standard has been set, all revisions or modifications are approved by the committee. The possibility of any variation from the standards will be eliminated by written instructions, which, of course, are revised periodically as necessary. Adaptability and suitability of equipment and standardized supplies will encourage future conformity to an established method and eliminate any need for haphazard modifications. Moreover, the systematic elimination of large quantities of paper at the source will reduce storage requirements and facilitate maximum use of the records retained under the program.

Procedures in Retention.—The important elements affecting the retention and preservation of records are the Statutes of Limitation,⁷ the regula-

⁷ After the specified retention period under the applicable Statutes of Limitation has passed, and defense against possible liability is no longer needed, the records may be destroyed.

tions of governmental agencies, and recognized historical value. Record retention periods are now prescribed by regulatory bodies for certain businesses. This may interfere somewhat with the destruction of many records regarded by the management as useless. Difficulty may be experienced also in obtaining legal consent for destruction of accumulations of useless records of everyday transactions which concurrently become useless.

Often legal advisers may hesitate to accept responsibility for approving the destruction of records because of possible unfavorable reaction if the records cannot be produced at some indeterminate future date. As a precautionary measure in following Statutes of Limitation (See Figure 127) records may be retained much longer than is really necessary. The regulations of governmental agencies contain positive retention limitations for certain records for many types of business but are indefinite as to the requirements for records retained for informational or historical purposes. A policy of record retention involves two primary considerations: legal necessity, as fixed by the Statutes of Limitation or other statutory or regulatory requirements and sound business judgment. Sound business judgment presupposes the retention and preservation of those records most likely to become useful for long range planning. Periodic analyses of historical changes and developments provide an invaluable indicator or guide for formulating future policies. Basic accounting and statistical records must be retained as well as supplementary supporting data covering the more important past procedures and policies. Formal applications filed with regulatory or governmental bureaus are often productive of orders authorizing the destruction of unwarranted accumulations of records which have served their useful life.⁸

CLASSIFICATION OF RECORDS FOR RETENTION.—Systematic retention and preservation require a definite classification of the records. The mere process of creating two categories—one, for records to be retained permanently or for a limited period, and the other for those records to be destroyed at once—does not provide a satisfactory solution. In each instance the fundamental purpose of record retention must be known and recognized. The requirements of Statutes of Limitation, formal regulations of governmental bureaus and historical needs should be given mature thought before classification can be determined. Four classifications are often applied to records, such as vital, important, useful and non-essential.

Vital records are irreplaceable records. These include records which offer direct evidence of ownership, charters, franchises, minute books, deeds, stock ledgers and transfer ledgers, journals, ledgers and primary engineering records. Important records are administrative instruments and include

⁸ A number of regulatory commissions require formal approval before destruction. Most of them will approve the destruction, if application is made under circumstances which show a definite need for the elimination of useless records.

LIMITATIONS FOR CIVIL ACTIONS FROM THE CREDIT MANUAL OF COMMERCIAL LAWS, 1946								
(LETTERS INDICATE FOOTNOTES. FIGURES INDICATE YEARS)								
O-ORAL W-WRITTEN								
STATE	PROMISSORY NOTES	OPEN ACCOUNTS	INSTRUMENTS AND CONTRACTS UNDER SEAL	ORDINARY CONTRACTS	DOMESTIC JUDGMENTS IN COURTS OF RECORD	DOMESTIC JUDGMENTS IN COURTS NOT OF RECORD	FOREIGN JUDGMENTS IN COURTS OF RECORD	FOREIGN JUDGMENTS IN COURTS NOT OF RECORD
ALABAMA	6	3	10	6	20	6	20	6
ALASKA	6	6	10	6	10	10	10	10
ARIZONA	6(s)	3	6(s)	3-O-6-W	5	5	4	4
ARKANSAS	5	3	5	5-W-3-O	10	10	10	10
CALIFORNIA	4 CORP. NOTES	4	4 IF BOOK ACCOUNT OR STATED ACCOUNT STATED OR WRITTEN CONTRACT, IF NOT-2	5	5	5	5	5
COLORADO	6	6	6	6	20	6	6	6
CONNECTICUT	17 NON-NEG.	6	17	6-W-3-O	NO PROVISION	NO PROVISION	NO PROVISION	NO PROVISION
DELAWARE	6	3	NO PROVISION	3	NO PROVISION	NO PROVISION	NO PROVISION	NO PROVISION
DISTRICT OF COLUMBIA	3	3	12	3	12	6W	V	V
FLORIDA	5	3	20	5-W-3-O	20	4	7	7
GEORGIA	6	4	20	6-W-4-O	7	7(A)	5	5
IDAH0	5	4	5	5-W-4-O	6	6	6	6
ILLINOIS	10	5	10	10-W-6-C	20	10	5	5
INDIANA	10	6	20	10-W-6-O	20	20	20	20
IOWA	10	5	10	10-W-5-O	20	10	20	10
KANSAS	5	3	5	5-W-3-O	20	10	20	10
KENTUCKY	15(r)	5(p)	15	15-W-5-O	15	15	15	15
LOUISIANA	5	3	10	10	10(u)	10(u)	10(u)	10(u)
MAINE	6	6	20	6	20	6(u)	20	6
MARYLAND	3	3	12	3	12	12	12	12
MASSACHUSETTS	6(w)	6	20	6	20	6	20	6
MICHIGAN	6	6	6	6	10	6	10	6
MINNESOTA	6	3	6	6	10	10	10	10
MISSISSIPPI	6	3	6	6-W-3-O	7	6	7(b)	6
MISSOURI	10	5	10	5	10	5	10	5
MONTANA	8	5	8	8-W-5-O	10	5	10	5
NEBRASKA	5	4	5	5-W-4-O	KEPT ALIVE BY EXECUTION EVERY FIVE YEARS	5	5	5
NEVADA	6	4	6	6-W-4-O	6	6	6	6
NEW HAMPSHIRE	6	6	20	6	20	20	20	20
NEW JERSEY	6	6	16	6	20	6	20	6
NEW MEXICO	6	4	6	6-W-4-O	7	6	7	6
NEW YORK	6	6	6	6	20	6(L)	20	6
NORTH CAROLINA	3	3	10	3	10	7	10	7
NORTH DAKOTA	6	6	6(w)	6(w)	10	10	10	10
OHIO	15	6(f)	15	6-O-15-W	21	15	15	15
OKLAHOMA	5	3	5	3-O-5-W	KEPT ALIVE BY EXECUTION EVERY FIVE YEARS	1	1	1
OREGON	6	6	10	6	10(x)	10(x)	10	10
PENNSYLVANIA	6	6	20	6	20(c)	20	20	20
RHODE ISLAND	6	6	20	6	20	20	20	20
SOUTH CAROLINA	6	6	20	6	10(x)	10(x)	10	10
SOUTH DAKOTA	6	6	20	6	20	20	10	10
TENNESSEE	6	6	6	6	10	10	10	10
TEXAS	4	2	4	4-W-2-O	10	10	10	10
UTAH	6	4(r)	6	6-W-4-C(r)	8	8	8	8
VERMONT	6(w)	6	8	6	8	6	8	6
VIRGINIA	5	3	10	5-W-3-O	20	20	10	10
WASHINGTON	6	3	6	6-W-2-O	6	6	6	6
WEST VIRGINIA	10	6	10	10-W-6-O	10	10	10	10
WISCONSIN	6	6	10-20(q)	6	20	6	10	6
WYOMING	10	8(p)	10	10-W-8-O	5(p)(x)	5(p)(x)	5	5

- (A) Even though judgments rendered in courts of Georgia become dormant after seven years, if no execution is issued, or if execution is issued but no return made within seven years, judgment may be revived by scire facias proceedings within three years thereafter.
- (B) Domestic Mississippi judgments are valid for seven years. Foreign judgments are same unless debtor resided in Mississippi when it was rendered, then barred in three years.
- (C) Lien on realty, five years; judgment is good for 20 years. Judgment may be renewed.
- (D) Actions on a merchant's account shall be instituted within five years from the 1st day of January next succeeding the respective dates or time or delivery of the articles charged in the account.
- (F) Written contracts 15 years.
- (J) Judgments of Justices of the Peace and Trial Justices, 20 years.
- (X) Judgment may be revived within 21 years after it becomes dormant.
- (K) Bill, notes, or other evidence of indebtedness, issued by a bank, promissory notes, with attesting

witness, as against original payee or his executor or administrator, 20 years.

- (L) Judgment of a court not of record docketed in a county clerk's office, 20 years.
- (M) Contracts affecting real property, 10 years.
- (N) If note be witnessed, 14 years.
- (O) If action accrues within the state, 20 years, if outside 10 years.
- (P) Foreign claim or judgment entered before debtor acquired residence in state, 5 years.
- (R) Five year period applies, if note is placed on the footing of a bill of exchange.
- (S) Instruments executed without the state, four years.
- (T) Time starts to run from date last charge is made or last payment is received.
- (U) May be revived for 10 additional years by action before statutes runs against the claim.
- (V) Suit may be brought on a foreign judgment unless statute of limitations has run against it in the jurisdiction where it was entered.
- (W) If judgment is filed in Supreme Court of District of Columbia, it is valid for 12 years.
- (X) May be renewed for additional ten years.

Figure 127. Limitations for Civil Actions

reports, statistical and cost studies and the great bulk of accounting records supporting current operating routines. Useful records are those frequently used and currently available, but their loss will not seriously handicap business operations. These records will ordinarily be destroyed as soon as current usefulness ceases. Non-essential records have no long term value and are eligible for immediate destruction. Even with the acceptance of such a rough classification, consideration must be given also to contingent value, legal value, possible interference with operations, relations with public or customers, relations with governmental bureaus, and the problem and expense of replacement in case of loss.⁹

Historical records may be subdivided according to their educational value; first, to the specific business enterprise, secondly, to historians attempting the study of important aspects of human experience, and thirdly, to the general public, which is served by business enterprise and, indirectly but not formally, governs the conduct of business.

The classification will be determined to a large extent by the nature, purpose, use of the records, the rules of applicable governmental bureaus and policies adopted with respect to retention periods. The classification determines to a large extent the kind of physical storage protection to be provided.

In the arrangement of the retention schedules either an alphabetic listing of forms for each principal department or a listing by the functional accounting classification may be used for segregation and cross-reference purposes or a combination of both may become invaluable in providing the record index with current and historical data not found elsewhere.¹⁰

In addition to legal requirements and historical value, consideration must be given to the possible future value of a record, its nature and significance with reference to future activities and policies, its availability elsewhere in identical copies, the extent to which the same data summarizes, or is in turn summarized by other records, as well as the degree to which the data provides essential details. All are of utmost importance in determining the retention policy.

ELIMINATION OF USELESS RECORDS.—The problem of retention is minimized by the elimination of useless records at the source. This is accomplished by immediate destruction once the record has served its primary purpose. Schedules showing by classification the retention period, the date on which destruction should occur and other pertinent details must first be prepared. The dates for retention purposes on these schedules are estimated maximum periods of usefulness. These dates may be revised by the committee as circumstances permit or as new legislation, instructions from

⁹ *Protection of Records*, National Fire Protection Association, Boston, Mass.

¹⁰ For a suggested classification and schedule of Retention of Records see *Protection of Records*, National Fire Protection Association, Boston, Mass., or any of the pamphlets issued by governmental agencies or state commissions regulating public utilities.

governmental bureaus, or when an analysis of changed economic and business conditions warrants revision.

The Depository.—The depository or “archives,” “storage vault,” “dead record storage,” “hall of records” (or by whatever designation the depository may be known) should be of fireproof construction and located at the principal office or near the principal center of activities. Many depositories are constructed so as to provide a receiving and sorting room as separate compartments, a small office space, and the actual storage area.

Before required storage protection can be accurately measured all possible hazards should be analyzed. The physical volume of certain classifications, the rate at which the records are transferred from current files and the use, purpose, and importance of the records after transfer to storage are all important. Ample space must be provided for future requirements, estimated on the basis of present size and the rate at which accumulations are anticipated. The depository must provide efficient and economical storage to provide protection from all destructive agents such as dampness, floods, dust, dirt, insects, and rodents and be arranged so as to assure ready accessibility to the stored records.

The selection of standard metal equipment is an essential element in the formulation of the basic filing procedure for either current records or storage purposes and it should conform with the structure of the depository.

All space in the depository must be utilized to the fullest extent, vertically as well as horizontally. This is accomplished by filing the records in vertical, incombustible steel cabinets (upright drawer units set on a base) which are comparatively safe from destruction. Steel shelves may also be installed. Certain non-essential records retained for short periods of time need no protection, but their retention in non-fire-resistive containers or in the open may provide a fire hazard for more valuable records. To insure orderly arrangement and added protection, not only unit-drawer-type steel cabinets but enclosed steel cupboards may be used. Protection against loss by fire or other destructive agents and availability and convenience in finding are important considerations in the filing and storing of inactive records. No structural safeguards can prevent the burning of wooden shelving, fixtures, fittings, and furniture. It is extremely doubtful whether wood should be used at any time as standard equipment in a record storage vault. This must be carefully considered before wooden shelving and equipment, which is not adjustable for all storage purposes, is installed. Although steel shelving is adjustable and fireproof, it has, nevertheless, the space-wasting features of wooden shelving. Moreover, the use of shelving encourages a tendency to place boxes on empty shelves without regard to proper placement in a standard arrangement. This may result in lost or misplaced records. The principle of immunity from fire is the safest one to follow. Standard steel

shelving is often used, however, for filing boxes of uniform size and for standardized arrangement of certain records.

The depository file cabinets should vary in size to accommodate records of varying dimensions. A substantial reduction in waste space is effected by appropriate selections for specific records. Cabinets of the same size are arranged one above the other to form a rigid, solid tier. Upright steel cabinets and enclosed cupboards should be arranged in sections. Each section should be identified by a letter or number and each drawer designated accordingly. Aisles of sufficient width provide easy access to the drawers. A section of drawers equipped with one or two metal vertical dividers for upright and compact filing of vouchers, canceled checks, or similar papers of uniform size often proves convenient. It may be desirable to have sections of enclosed cupboards with steel shelves (each to be identified) for storing permanently bound minute books, registers, maps, and the like, all of unusual sizes. For more confidential records certain cabinets may be equipped with paracentric locks. Metal doors to the depository should open outward for convenient exit in an emergency.

Pure air in the depository is essential both for the comfort and efficiency of the personnel while doing the preliminary work incident to filing and placement of the records and as a protective measure for the records. If the depository is improperly constructed, or is without proper facilities for ventilation, the records are exposed to certain hazards such as dirt, dust, and vermin. Dust may be abrasive and dirt contains chemical and bacterial agents destructive to paper. The principal vermin found among records are silver-fish, book-lice, termites, and cockroaches.¹¹ Protection of stored records from vermin is a serious and difficult problem, which climatic conditions render more or less acute in various locations. The cellulose in paper and fabrics attracts certain species; while glue, starch, and casein attract others. To combat this, adequate artificial lighting is an important consideration in the construction of a depository but such light should not reach the records proper as this may discolor ("yellow") and also cause embrittlement of the paper. A positive circulation and diffusion of air through the storage space facilitates proper control of temperature and humidity. The air, of course, may be changed by taking in a supply of fresh air at such intervals as may be necessary. In an air conditioned depository, the temperature may be automatically maintained at the most desirable level by means of thermostatic control. In the absence of air conditioning, air filters aid materially in keeping dust and dirt to a minimum. The ideal depository is, of course, one which is fire resistant, has full protection from floods, is air conditioned, and is equipped with facilities for fumigating all records before they are placed in the file cabinets.

¹¹ See *Leaflets Nos. 144 and 149*, United States Department of Agriculture, Washington, 1939, and National Bureau of Standards, *Miscellaneous Pub. M 154*.

Records storage facilities are available in the larger business centers for maintaining the inactive records of those business enterprises which are either crowded for space or where the value of available space appears prohibitive. Such an expedient is at best a temporary one.

Records should be arranged in classified groups to facilitate identification and assigned to cabinets on the basis of size and the accumulation rate of each type of record. Strict and absolute chronological sequence by months and years is the most logical and desirable arrangement. All loose papers should be securely fastened in chronological order in covers or folders or bound in permanent form. Covers or bound volumes should be labeled uniformly to show the appropriate subject title.

Arrangement of bound volumes, such as registers, minute books, and ledgers, presents no difficulty from the viewpoint of physical bulk and the size of separate volumes, but requires special treatment because of unusual dimensions. These are usually stored on shelves in enclosed cupboards. For identification a sticker is pasted (not glued) to the back of each volume. The company name, descriptive title, or classification of the volume, and the period covered are the usual data typed (in capital letters) on the label. Labels should be affixed with meticulous regard for the original appearance of the volume.

Inactive Record Index.—Mere storage and the prevention of deterioration are not enough—it is important that the records be available when required. To accomplish this, the records must be properly classified, arranged, and indexed. No arrangement of records in a depository should be attempted without an index. The index is a permanent record of all papers filed in the depository and also of those previously destroyed. Evidence of the previous existence of a record and of its final disposition is a very essential part of the procedure. The index should be prepared on standard size cards. Cards of different colors may be selected for each principal division and for cross-reference to facilitate identification. The retention period, the year of actual destruction, and other pertinent data should appear on the face of the index card. The period of retention is computed usually from the date of the last entry which is usually a date in December of each calendar year or the last day of the fiscal year.

The prescribed retention periods must be followed. If each calendar or fiscal year is used as a basis for clearing accumulations, and the index card for each record is marked to indicate its retention period and proposed year of destruction, there should be no particular difficulty in disposing of useless records and keeping unwarranted accumulations at a minimum.

Transfer of Records to Depository.—Accumulation of records processed for storage should be transferred to the depository immediately after

the close of the calendar or fiscal year. The containers as well as the records should be marked or labeled to show the retention period and date of destruction. Accompanying these records are forms listing the records by classification and showing definite dates of destruction for those not to be permanently retained. Physical segregation of inactive records (or those not retained permanently) from active records will not be accomplished by separation within the depository. The periodic elimination of useless records in accordance with the schedule of destruction results in automatic and continuous segregation and the assigned retention classification definitely segregates active records from the inactive ones.

Periodic Destruction.—Particular care must be exercised to meet the requirements of prescribed retention periods. If each calendar or fiscal year is used as the basis for clearing and destroying accumulations of routine but useless records and if one subdivision of the index is arranged to pro-

REQUEST FOR AUTHORITY TO DESTROY RECORDS

(Company)

To _____

(Date)

At _____

(Location)

(District or Division)

Authority is requested for destroying, by cremation, the Company records listed below which are now located at _____

(Name)

(Title)

Form Number or Other Identification	Description	Period	Statute of Limitations or Other Retention Requirements

Figure 128. Request for Authority to Destroy Records

vide a tickler for removal of the records scheduled for destruction, no particular problem is encountered.

A complete list of records to be destroyed in accordance with the standard retention requirements should be prepared and submitted for approval on a standard form somewhat similar to Request for Authority to Destroy Records (Figure 128). However, each record scheduled for destruction must be examined to eliminate the possibility of any unauthorized destruction. Destruction of records stored in labeled paper boxes without actual inspection and verification of the contents of the box may result in the unauthorized destruction of vital or important historical records. Before destruction, the dates shown on the index and the record itself should be verified.

After the request for authority to destroy records is approved, a written form somewhat similar to Authorization Covering Destruction of Records

AUTHORIZATION COVERING DESTRUCTION OF RECORDS			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">(Company)</div>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">(Location)</div>		<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">(Date)</div>	
<p>In conformity with the authority conferred upon me by the Board of Directors, I hereby authorize and direct _____</p> <p style="text-align: right; font-size: small;">(Name and Title)</p> <p>to destroy the accounts, records, and memoranda of this Company listed below, and located at _____</p> <p style="text-align: center; font-size: small;">(Identify)</p>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">(Name)</div>			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">(Title)</div>			
Form Number or Other Identification	Description	Period	Statute of Limitations or Other Retention Requirements

Figure 129. Authorization Covering Destruction of Records

(Figure 129) may be issued. This form states that the records listed in the authority and no other records have been destroyed. Under no circumstances are records destroyed or otherwise disposed of without appropriate approval as shown by the Authorization Covering Destruction of Records (Figure 129). Destruction may take the form of shredding or sale of the records as waste but cremation will be found preferable to any other method. A "Cremation Certificate" (Figure 130) showing also the nature of the records, the inclusive dates, the manner of disposal, and the date, is executed next by the employee authorized to destroy the records. These forms which become a part of the permanent records are a historical list of all records destroyed. These accumulated lists also provide protection in case of legal difficulties inasmuch as there is positive proof of a formal policy which has been effective throughout the period covered by these lists or cremation certificates. In some instances, it may be found adequate to combine the request to destroy records with the actual cremation

CREMATION CERTIFICATE			
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> (Company)			
To _____	_____ (Date)		
At _____	_____ (City)		
(Location)			
I hereby certify that I have this day destroyed, by cremation, the accounts, records, and memoranda listed below, and further that no accounts, records, or memoranda other than those named were destroyed therewith.			
_____ (Witness)		_____ (Name)	
Located At _____		_____ (Title)	
(Identify)			
Form Number or Other Identification	Description	Period	Statute of Limitations or Other Retention Requirements

Figure 130. Cremation Certificate

certificate. Blanket authority may be issued when geographical separation of division or branch offices warrants this procedure. The forms, which are self-explanatory, may be noted on Figures 131 and 132.

<div style="border-bottom: 1px solid black; margin-bottom: 5px; width: 80%; margin-left: auto; margin-right: auto;"></div> <div style="text-align: center;">(Company)</div>	<div style="border-bottom: 1px solid black; margin-bottom: 5px; width: 80%; margin-left: auto; margin-right: auto;"></div> <div style="text-align: center;">(Date)</div>
<div style="border-bottom: 1px solid black; margin-bottom: 5px; width: 80%; margin-left: auto; margin-right: auto;"></div> <div style="text-align: center;">(Office of the Secretary)</div>	
<p>In conformity with the authority conferred upon me by the Board of Directors, I hereby authorize and direct the _____</p> <p style="text-align: right; margin-right: 100px;">(Title)</p>	
<p>of _____ to destroy, from time to time, the accounts,</p> <p style="text-align: center; margin-left: 100px;">(Location)</p>	
<p>and memoranda of this Company in his custody, the destruction of which is permitted until further order by regulations of _____</p>	
<div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;"></div> <div style="text-align: center;">(Name)</div> <div style="text-align: center;">SECRETARY</div>	

Figure 131. Authority to Destroy Records

Microfilming

Methods of Duplicating.—Three basic methods of duplicating records are in use. First, manual copying and retracing which is tedious, costly, and susceptible to errors as verification with the original is laborious and provision for storage may become a difficult problem in time. Second, the method known as photostatic reproduction which is rapid, accurate, and provides both positive and negative prints. Proper treatment in the processing of the prints insures a long life but the prints tend to become brittle if folded and, unless carefully handled, deteriorate within a few years. Storage space for photostats becomes a major consideration as the possibilities of reduction are limited. The third method—microfilming—has numerous advantages over the first two as it is rapid, accurate, and fairly low in cost. Microfilming is a process of duplicating records on small scale (16 and 35 mm.) cellulose acetate safety-base film somewhat similar to that used for motion pictures. Microfilming is specialized photography which makes possible the reduction of images to such small size that they cannot be read without optical assistance. Microfilming, as a method of duplicating, differs from the first two methods in that the duplicated image is only about one percent of its original size, which actually reduces to a minimum the space needed for storage.

CERTIFICATE OF DESTRUCTION

(Company)

TO THE SECRETARY

(Date)

At _____

(Location)

(District)

Pursuant to your authority dated _____, 19____, I hereby certify that I have destroyed the accounts, records, and memoranda listed below, and further that no accounts, records or memoranda other than those named were destroyed therewith.

(Name)

(Witness)

(Title)

Form Number or Other Identification	Description	Period	Statute of Limitations or Other Retention Requirements	Date of Destruction

Figure 132. Certificate of Destruction

The Equipment for Microfilming.—Microfilm equipment consists essentially of a specially high speed camera with a mechanism for holding records, auxiliary equipment for developing films, and reading devices through which enlargements of the pictures may be displayed on a screen or a translucent surface. The reading device has facilities also for securing a direct enlargement of the film.

Two types of cameras are used for microfilming.¹² The first or commercial type, which is similar to the movie camera, automatically photographs on small film copy fed into a hopper arrangement. Both the film and the copy are in motion while the exposure is being made and the length of film used is in proportion to the size of the original record. Images are spaced uni-

¹² Seely, Oliver D., *Microfilm Equipment and Cost Analysis of Installation*. Report No. 7, Office Planning and Equipment Committee, Life Office Management Association, New York, N. Y., 1940.

formly apart irrespective of the length of the image. This camera is usually leased to and operated by the user. Little training is needed nor is unusual photographic skill essential as the operation is simple and most of the functions are automatic. The photographic unit operates at high speed and photographs copy as fast as it is placed in the hopper. These cameras take two negatives at one time and ordinary records may be microfilmed at approximately 1,000 items an hour. A combination camera and projector is now available designed for use where the volume is insufficient to warrant both a camera and a separate projector.

The second or adapted type of camera, equipped with special accessories, is operated by technicians who understand focusing, proper lighting, and the kind of exposures required for the best results. This equipment, which does not include automatic features, may be either purchased or leased and is used if considerable variation in the size of records is found to prevail and the volume is small. These cameras are usually limited in their use for microfilming.

Specialized projectors are available for filming blueprint plans of various sizes, some with attachments for making photographic prints of entire drawings or portions of drawings, or other enlarged plans by means of separate enlargers. Drawings or plans of varying sizes may be microfilmed, then enlarged on pieces of paper of uniform size, or on vellum or cloth. Pencil drawings may be photographed to eliminate a laborious and costly tracing operation. Certain cameras are designed so that the operation may be reversed to provide photographic reproductions.

The commercial cameras are equipped with a mechanism which permits the card, document, or record to be flipped over and photographed on the reverse side as well as the front and ejected from the machine in proper sequence. The speed of this operation may be at the same rate as for one side on some cameras; others require twice the rate for the operation.

Cameras are equipped with item counters, numbering devices, and indexing dials to record the date and to place indexing symbols at appropriate locations along the edge of the film as the records are photographed. A standard means of identification on the face of the film is important to enable ready access to the correct roll of film and to a specific record should immediate inspection be required. These indexing devices facilitate finding, just as guides and folders facilitate the finding of papers in file drawers. Auxiliary equipment, when attached to a photostat machine, will provide simultaneously microfilms of photostat reproductions.

The reader, or viewer, is a projector for viewing the films and may be used for either the 35-millimeter or 16-millimeter film. It is a translucent screen, of varying size, upon which the film is projected from within the equipment. The reel of film is mounted on a carrier and turned by a crank to facilitate moving the film forward or backward or is automatically moti-

vated. The picture to be viewed is illuminated and use of the viewer does not cause undue eyestrain.

Desk type projectors permit placing a roll of film in a unit, and the image is projected against a mirror and brought back to a translucent screen directly in front of the reader at eye level. Another type of projector permits continuous reading of the film which is placed in the top of the unit and the image is projected down to an opaque screen slightly above the level of the desk and enclosed on three sides to exclude extraneous light. As the images appear at desk level, it becomes possible for readers to take notes from the projected images just as may be done from an open book, magazine, or newspaper. This type of projection equipment is used in libraries and other organizations where there is considerable use made of film copies. It may be used also to enable a typist to produce a specific facsimile without the need to reproduce a copy of the entire film.

Film size is indicated by its width measured in millimeters. The 16-millimeter film is in rolls of 200-ft. length and the 35-millimeter film in 100-ft. length. The 35-millimeter film is used for large documents such as engineering drawings and newspapers. The films are of three types (1) with perforations along one edge of the film, (2) with perforations on both edges, and (3) with no perforations. Non-perforated film allows the entire width to be utilized and both sizes are processed in 100-ft. strips. A foot of the 16-millimeter film permits about eight exposures, each the size of the usual bank check. Records or papers which have been shrunk to a smaller image in the microfilming operation may be blown back to actual size, or larger, by photographic projection on paper or cloth.

Records cover a wide range of sizes. No restriction should be placed on the use of either 35 or 16-millimeter film as it may be found that large records are overly reduced on the narrower film. Use of the wider film for small records is an unjustifiable waste. Film is never wasted lengthwise, for an automatic mechanism advances only the exact length required to photograph the specific record then being fed to the camera.¹³ Positive microfilm is a duplicate processed from the negative by contact printing. It is delivered in rolls and if expedient may be cut in strips for specific uses.

The Application of Microfilming.—The application of microfilming covers the entire field of records. Manuscripts, printed or typed matter, sketches, drawings, or photographs may be readily duplicated. The entire contents of files may be microfilmed, then placed in storage and the originals destroyed or retained as the circumstances require. Highly valuable but

¹³ For a detailed description of the various cameras, projectors, and accessory equipment used in the microfilming process, the reader is referred to the National Microfilm Association, New York, New York. This is the microfilm trade association which, if unable immediately to supply specific information, will circularize its members. See also Ralph De Sola, *Microfilming*, Essential Books, New York, 1944.

routine records may be safeguarded by retaining both the originals and microfilms at separate locations. Microfilm copies are often easier to review than the originals and if at any time their reproduction to original size should become necessary, full size reproductions can be produced at low unit cost on automatic machines. Large documents are reduced to a fraction of their original size. Conversely, paper enlargements which are reproductions made from the negative microfilm by projection may be utilized for special needs. Microfilming as a modernized method of preserving copies of important and vital records provides a means whereby unimportant records such as sales slips, correspondence, and other business papers, voluminous, bulky, but relatively unimportant when treated separately, may be automatically and currently photographed and the original returned to the buyer or sender. This results in immediate and automatic elimination of bulky and unessential papers from current files.

Records should be filmed on the premises if the volume is sufficient to warrant direct ownership of or periodic lease of the equipment which means transporting and setting it up for temporary use. The film is then sent to a specially equipped laboratory for processing and inspection. Otherwise, records may be sent to commercial microfilming establishments which complete the filming and indexing and return the records and a copy of the film. They may retain the original film for safekeeping if so instructed.

Microfilming offers great potentialities for the protection and preservation of original records. Records are still being created without consideration of their permanent preservation or possible future importance. A microfilm copy of a paper, document, or record, if made while the original is legible and in good condition, will preserve the text for the future and may be more legible than a poor original. The life expectancy of records written in pencil or ink on low grade paper is relatively short. These records cannot stand handling or casual storage and yet may assume significance in specific instances.

Microfilming is essentially an application to stored records. It cannot be applied to current records with satisfactory results. These are active and incoming papers must be interfiled with other papers from day to day. Obviously, microfilm cannot be spliced economically to keep pace with the daily growth of records resulting from current business operation.

The Advantages of Microfilming.—The loss of original records may be extremely costly in case of a fire or other disaster. Microfilming insures the safeguarding of important records and the immediate availability of exact copies for every contingency.

Microfilm has eliminated the destruction problem. The original may be destroyed and yet the advantage of retaining a perfect copy of the record is retained. A decision to destroy now becomes a decision to con-

dense. The destruction problem is solved by disposing of the bulk and at the same time retaining the microfilm of the originals for future use. Even though the original records are retained, it may be found desirable to provide microfilm for inspection, so as to avoid frequent use with consequent wear and tear on the originals.

Microfilms are equally important in making records available. Duplicates are available and there is little inconvenience should two or more readers require them at the same time. Duplicates of microfilm tools such as indexes, catalogs, and card files can be made available simultaneously in several places, thereby effecting a considerable saving. This is an important consideration for businesses with numerous branches or decentralized division offices. Microfilming makes it possible to house complete sets of plans and drawings of larger or complex structures in a fraction of the space formerly set aside for the storage of the originals.

Microfilming of inactive records means a reduction in storage space. A minimum of filing equipment is required and the labor cost of maintaining storage facilities is reduced. Fewer file cabinets, vaults, or other safeguards are required for the protection of records. This results in considerable saving in both capital and operating costs. Microfilms may minimize and in some instances eliminate entirely the retention problem of a great variety of records.

Microfilming is used to reduce the physical bulk of materials that must be preserved. The problem of bulk is now assuming alarming proportions and microfilming seems the most logical solution. It is almost the only facility that offers hope for solving the problems created by the increased bulk of records. At the same time the most frequently used inactive records can be stored at the point of primary use inasmuch as proper sequence is maintained on the rolls of film and reference to the data is thereby facilitated if used at points distant from the location of the originals.

The Program for Microfilming.—A program of microfilming records includes (1) determination of the retention period and location of each record, (2) coordination of microfilming process with record retention program, (3) determination of records to be filmed, (4) determination of whether record is to be destroyed after filming, (5) determination of schedule of filming process (whether annually, semi-annually, quarterly, or monthly), (6) determination of schedules and flow of work for microfilming process, (7) preparation of an index on which should be shown the name of the record, form number, if any, established retention period, and reference to other copies of the same form with location and the schedule of microfilming. From this index a catalog should be prepared, departmentalized, or classified by appropriate divisions or by accounting classifications, if required, to which schedule numbers are assigned. This permits

unlimited expansion as each different class of record will carry a separate item number under its respective subject and the microfilm can be cross-indexed to appropriate item numbers. Separate schedules then can be prepared for each department, division, or other principal classification. Similar size records should be scheduled as a continuous filming process and all other make-ready¹⁴ functions completed before the actual filming process begins.

Identification and Labeling.—Each film and its container must be labeled clearly and concisely with identification marks so as to be identified quickly with the naked eye. Lacking a label or a magnifier it is impossible to determine what the film reproduces—much less reading it. The container must be labeled and there should be sufficient identifying information in legible form attached to the film to eliminate the need for any artificial reading aid. A sticker on which all indexing data is shown, or writing the data on the end of the unused leader strip of the film, will avoid misplacement. The leader strip thereby becomes the identification label and should include reference to the container, the index, the cabinet, drawer, or other storage location.

The schedule and item number should appear on the label of each container of film and each film numbered consecutively for each unit. The label on the container and the index will indicate the schedule, item number, unit number, beginning and ending dates covered on the film, and the first and last letter for records in alphabetical sequence, or the first or last number for documents arranged in numerical sequence. For future destruction it may be found desirable to insert the date, hour, and minute as each microfilm is completed.

Microfilms should be designated alphabetically or in series of letters or preferably numbered consecutively to accord both with the schedule and the indexing procedure. Simultaneously, a permanent record of each film in the form of a certificate should be completed. A time stamp impression on the record should show the time (both starting and ending) designated by date, hour, and minute. This certificate shows the name of the record, departmental origin or form number, dates or serial numbers, if any, name of microfilm operator and date photographed. This data also should appear at the beginning of the film and also at the end of the film and is photographed as the last item on the roll. The certificate should then be folded

¹⁴ The make-ready or preparatory work is one of the most important and certainly the most costly operation connected with microfilming. It includes the preparation of the records to be filmed by removing them from folders or binders, removing pins, staples, or clips and verifying each record for sequence and thereupon feeding the records in sequence into the hopper arrangement. Considerable sorting and handling of records before filming may tend to offset a great part of the anticipated economies from the microfilm process. After filming is finished, the record must be removed to storage or disposed of in accordance with the destruction schedule.

and inserted in the container to definitely connect it with the applicable roll of film and to substantiate the relation of the film to the original record. A copy of the certificate may even become a part of the records retained permanently. If the organization and classification of the business records facilitate ready reference to them, it seems highly desirable for the micro-filming indexing procedure to parallel them so that anyone familiar with the actual record may locate its microfilm counterpart without undue difficulty. If the finished microfilm includes images of two or more types of records, splicing becomes necessary to include the foregoing indexing references in the required location on the film and so complete the sequence of identification.

The Storage of Microfilms.—Special storage conditions are no more necessary for microfilms than for ordinary record storage. If a proper ventilating and heating system prevents too great extremes in temperature and if humidity is kept at a reasonable point there seems little likelihood of harm to the films from changes in atmospheric conditions. If films dry out through temporary drops in humidity they will readily reabsorb moisture. If a film becomes dry and brittle from being kept in an overheated, badly ventilated room, it can be restored to normal by placing it in a specially designed humidifier. The film spools have openings on the side so that air has free access to the film. If the volume of films and the size of the storage space warrant the installation of air conditioning equipment the films will be satisfactorily safeguarded. The film is no more inflammable than paper and no special fire hazard is involved in storage. The permanence of film is similar to that of ordinary paper records. Tests made by the National Bureau of Standards indicate a life of at least 100 years for film when correctly processed and properly stored.¹⁵

The dust problem is an acute one in the storage of all records. On microfilms, particles of dust will scratch film emulsion. Storage must be provided to keep the films as free as possible from the deteriorating effects of dust. Projectors also must be kept free of dust so this dust does not come in contact with the film. For full protection not only against dust but for safekeeping, films should be stored in standard size paper cartons or metal containers and then arranged in chronological or some other standard order within storage cabinets.

Owing to the reduction in the volume of storage space needed for microfilms, improved storage facilities may be provided and the problem of accumulated dust or dirt almost entirely eliminated. The use of standard size transfer files and storage cabinets permits an orderly arrangement of the standard microfilm containers (size about 4 in. x 4 in. x 1 in. occupying

¹⁵ *Research Paper RP 950*, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C.

about 16 cu. in. of space) which for practical purposes should be indexed by location within the storage space proper.

The annual expense of maintaining stored records varies in proportion with location, size of storage space, and other factors. If the records being retained permanently are stored in basements or lofts or other inexpensive rent locations, without consideration to the contingent value, then no thought need be given to microfilms. Under modern business conditions, however, housing space becomes very valuable and expensive unless used for productive purposes. A carefully planned microfilm program will result in economies where housing space is at a premium. Obviously, the greatest savings in expense will occur through microfilming the bulky records but study must be given to the time consuming element if reference to films of other records becomes complicated and burdensome.

Various factors must be considered here. The time consumed for inserting the reel in the projector, locating and viewing the image, recording the desired data, if required, cost of preparing prints, and any rental costs for projectors or reading devices. The cost of reference to and replacement in storage may exceed cost of similar steps for the original record depending upon the availability of the stored microfilm.

In essence each microfilm program must be analyzed upon the basis of the conditions existing in the specific instances. No generalities can be assumed. No specific comparisons can be undertaken unless the particular circumstances of each record are known and not until definite policies are adopted.

Estimates of savings in the cost of stored records are available but there is nothing definite yet from which conclusions can be drawn except that maximum annual savings will occur in rent because of lesser space requirements and in depreciation because of a decrease not only in the total cost but in the quantity of storage equipment needed for microfilms.¹⁶ It can be seen that substantial savings may result when the principal bulky and cumbersome records are microfilmed. Savings must be computed on the basis of savings in floor space. Computations of economies of microfilms over those of storage of unfilmed records must include costs incident to stored records and of all costs of processing and storing microfilms.

Microfilms as Evidence.—Microfilms are becoming acceptable more and more as evidence in courts of law. In several cases it has been held that the accuracy of microfilm copies could not be questioned and could be accepted as primary evidence.¹⁷ Both federal and numerous state statutes include liberalization of the rules of evidence for the introduction of microfilms of

¹⁶ Seely, Oliver D. *Microfilm Equipment and Cost Analysis of Installation*. Report No. 7, Office Planning and Equipment Committee, Life Office Mgt. Assoc., New York, 1940.

¹⁷ *United States v. Martin T. Manton*, 309 U.S. 664 (1939).

public records as evidence. Even though many of these statutes limit the use of microfilms as evidence to public records, it is indicative of progress which may, in time, mean the use of microfilm as primary evidence of private records not only by regulatory commissions and tax bodies but courts of law. Whether there is a statute or not, courts are somewhat liberal in admitting as evidence book entries and other papers completed in the regular course of business.

An elementary rule of evidence is that the best obtainable should be produced in court. Under this rule a copy will not be admitted if the original can be produced for inspection and examination. Accordingly, originals of records with probative value should be retained until that remote time when it appears no need will be served by longer retention. If destruction of the original is accomplished under a well designed destruction procedure accompanied with competent evidence indicating microfilm copies of the originals to be true and correct ones then it seems extremely probable that these microfilms will be admitted as primary evidence. As a corollary under a program of periodic record destruction, supporting certificates executed by properly authorized officials should be permanently retained for complete history of the destruction. If the person who executed the certificate is not available when proof is needed there should be an official who can identify the signature, support the accuracy and historical significance of the actual destruction, and offer evidence of the accuracy of the microfilming process. This can be done after establishing the existence of the original, presenting underlying reasons supporting the destruction of the original, and giving full justification for destruction of the original and preserving the microfilms as secondary evidence. Where microfilms are made in the regular course of business as entries are made in the accounting records, proper foundation will be laid for the introduction of films as primary evidence. In view of the evident and widespread progress in microfilming, it seems reasonable to forecast that it will not be long before microfilm records will be admissible without question as primary evidence in litigation involving private as well as public records.

CHAPTER 19

COMMUNICATIONS AND REPRODUCTION

Mail Room

Importance of Mail Room Service.—The mail room is one of the nerve centers of company activity. Its efficient operation has a great deal of bearing upon the speed and efficiency with which the transactions and events of the business are conducted. The failure of the mail room to have the incoming mail properly distributed by the time the executives and others arrive at work tends to delay the start of the business day for them. The prompt and accurate collection and distribution of inter-office mail throughout the day speeds up communication between all divisions of the enterprise. The preparation and prompt forwarding by appropriate means of all outgoing mail helps to give better service to customers and to maintain contact with outlying sales, manufacturing, or warehousing activities which form a part of the total company. Careless handling of mail in the mail room may delay executive action, the purchase of materials, the shipment of finished goods, or in many other ways impede business progress. Improper routing of incoming mail or/and inter-office mail may cause such delays and may also result in permanent loss of the documents. The importance of the services rendered by the mail room and the cost to the business of mail room operations more than justify whatever executive attention is needed to insure its proper organization and effective operation.

Organization.—The duties and responsibilities incident to the receipt, collection, distribution, forwarding and other activities closely associated with the handling of mail are usually imposed upon the office service manager or the office manager. To assure the efficient discharge of these duties, someone must be delegated to perform them or accept the supervisory control over those who do the work. The nature of mail room operation necessarily requires the activity to be centralized and because of its importance it must be organized as a part of a division controlled by supervisor or executive of such capabilities as will insure a prompt and efficient discharge of its responsibilities. It is not uncommon for messenger service to be organized as a part of the mail room unit. In addition to the advantage of centralized messenger service, it also makes possible better utilization of messenger service, better supervision over the service and at the same time it provides

an opportunity to use the spare time of messengers in the mail room and to train messengers for more important clerical and other posts. In some concerns the mail room must assume responsibility for the handling and mailing of advertising pamphlets and bulletins as well as the maintenance of mailing lists used by the sales promotion or other divisions of the business. In the smaller concerns it is likely that such simple duplicating devices as may be used will be located in the mail room and operated by its personnel. Even though the concern be so small that mail room operation requires only the part time services of one person, the responsibility for mail service should be definitely fixed upon this individual. Not only will this tend to insure better service, but it will make it necessary for that person to become thoroughly familiar with postal regulations, train schedules, and similar matters which are essential to proper handling of mail and parcel post.

Location.—In the larger concerns where the volume of mail is heavy and deliveries and pickups are made by truckmen engaged for the purpose, it is preferable that the mail room be located near a freight elevator or, if in a single story building, adjacent to the service entrance. In many cases the location may be conditioned by the fact that mechanical means are used for forwarding mail from various points in the office to a central location. In such cases, a mechanical installation will determine the most suitable location for the mail room. It should not be placed in space that is not suitable for the performance of ordinary clerical work. Good light and ventilation are important to its good operation. In many large concerns occupying several floors in a building sub-stations are located on various floors so that mail may be forwarded to or picked up at the sub-station in bulk and redistributed by full time or part time messenger service from that point to offices and working places on the respective floors. It is unwise to locate the mail room so that traffic to and from it must use the corridors along which the executive offices are located.

Operation.—When incoming United States mail is received at the mail room, it is pre-sorted to segregate personal or personal-marked company mail. This type of mail is usually delivered without opening to the person addressed unless company practice provides otherwise. All other mail is opened by machine or by hand and letters are unfolded; pages are fastened together; envelopes are attached to letters, if desired; received dates are stamped on fronts or backs of letters. If remittances are included in the enclosures they are usually recorded and attached to the documents with which they were enclosed so that they may be forwarded to the proper department. If the remittances are in the form of currency additional precautions for its proper handling may be needed.

Clearing the incoming United States mail requires the services of employees who are thoroughly acquainted with the company's organization, its

methods of doing business, its product, in fact, all of its affairs, as each letter must be carefully read and correctly routed to the department that will answer or otherwise dispose of it. Such employees eventually become so well-informed that management will want to assure itself in advance of the integrity of the readers lest company matters be lightly discussed with undesirable results. Once a letter has been read it is placed in a labeled rack or other suitable receptacle where it awaits delivery to the indicated department or individual. In many cases the reader should route incoming mail by way of the central files so that previous correspondence may be attached before it is delivered to its proper destination. Delivery should be in small lots as the reading progresses rather than starting after reading of the entire mail has been completed.

The use of one or more readers in the mail room is important, first to speed the preparation of the mail for delivery to those who will process it, second to avoid the misrouting of mail and thus slowing down its handling as well as placing additional work upon those who have responsibility for the handling of correspondence. After the first class mail arriving on the first delivery has been handled, the mail force directs its attention to the second, third and other classes of mail matter. As subsequent deliveries are received the process is repeated. The time elapsing between the handling of one delivery and the arrival of the next is usually employed in the handling of inter-office mail and in preparing outgoing mail for forwarding. As a rule the accumulation of letter mail is small early in the day, so this is the time to enclose and prepare for mailing third and fourth class mail, advertising pieces and the like. The readers, because of their presumably greater competence, may be used for these duties: for the development of control information, for bringing mailing lists up to date, and for learning and interpreting new and changed postal regulations.

Outgoing United States mail is brought to the mail room at scheduled intervals during the day, for enclosing in envelopes, sealing, rating and stamping with metered mail machines or with postage stamps. Some firms permit each stenographer to enclose her letters, especially in the case of confidential mail, or where enclosures may become separated. This is not necessary and it may not be the most efficient way to do it. Well-trained mail room personnel may be able to do a better job of selecting the proper mailing envelope. At the time the enclosure is inserted, they may make record of the accumulating postage expense of the department sending the letter. The practice of sending mail to the mail room unenclosed permits the combining in one envelope of all mail for any one branch.

Mail room employees should become thoroughly acquainted with the regulations found in the postal guide and they must be familiar with train and plane schedules, geographic divisions and parcel post zones. Mail must

be carefully weighed, properly rated and immediately stamped. Classes must be kept separate and bundled according to postal regulations, commonly called "facing." Bagging is done in private bags or sacks, to be locked or left unlocked, and here it is well to ask the advice of the local Superintendent of Mails. If a satisfactory bag-holding rack is desired, have one made like those used in the post office. The Postmaster's chief complaint is the patrons' universal habit of late-mailing. For this reason, deliveries to the post office should be broken up by mailing at least twice a day. Mail schedules should be anticipated where possible. This form of cooperation with the post office pays dividends.

In so far as it is possible to do so, the distribution and collection of incoming, outgoing and inter-office mail should be handled on a time schedule basis. Frequency must be determined by the volume as well as the importance of the mail and the extent to which inter-office correspondence is relied upon as a means of communication between activities. In some instances, collection and delivery should be on an hourly schedule, while in others a two- or three-hour schedule may serve adequately. The office executive must study the problem and set up the schedule as a result of the facts gathered. He must exercise sufficient supervision over the work of the mail room to know that it is rendering the most satisfactory service to the company as a whole and at the same time is doing so in the most efficient manner.

Postage Control.—If postage stamps are used, a careful control should be set up to prevent "shrinkage" resulting from accidental loss, mutilation, pilferage, or careless rating. Postage costs by departments should be analyzed. Permit mail should be used for third class mailings. This will involve segregation of address lists by states and cities alphabetically and tying the various bundles, but gives the cheapest rating and quickest handling of third class mail.

Mailing machine manufacturers have made such extensive improvements in their machines and provided such a varied line of models to suit different types of mailing for the large and small concerns that metered mail bids fair to become almost universal in the business field. It saves time in handling, both in mail room and post office. It also eliminates pilferage and simplifies accounting. Most models combine sealing with the indicia printing, and the larger models are equipped to print the indicia directly on a mailing piece, or to print on a gummed tape for affixing to packages too large to take the indicia with direct printing.

Precanceled stamps are still available for use on third and fourth class mail but their use entails many disadvantages. Because of the availability of metered mail equipment in all price ranges precanceled stamps may fall into eventual disuse.

By presorting the outgoing mail before enclosing, mail after enclosing may be divided into departmental groups and record made of the daily expense by departments. This record may be kept on a simple, columnar form, with totals drawn off daily in a ledger book, to be recapitulated at the end of each month, balanced and held for the inspection of the company auditor.

Equipment.—The well-planned mail room will need the following basic equipment:

- Enclosing table with compartments holding envelopes
- Envelope trays to take the envelopes after letters are enclosed in them
- Postal scale
- Sealing machine, or
- Metered mail machine with sealing feature
- Proper type of mail bags
- Bag-holding rack
- Sorting rack, or mechanical sorting device for collating mail
- Date stamps
- Rack or cabinet for envelope stock
- U. S. Postal Guide
- Atlas
- Hotel guide
- Air mail guide
- Such miscellaneous equipment as a mail opening machine, scissors, twine holder, marking brush, gummed labels, wrapping paper, boxes, etc.

Economy in the Mail Room.—The annual cost of postage to a fair-sized business represents a substantial sum of money. If, however, the correspondence on which this postage is applied is effective, the cost is small compared to the results obtained. Although the mail room deals for the most part with small sums of money in the form of postage stamps, much waste is possible where employees are not properly trained, suitable equipment and working conditions are not provided and necessary controls lacking. There are many opportunities to create economies in mail room operation through cooperation with other activities of the company which may have reason to send out at intervals large quantities of promotional or other mail matter. In planning direct mail and promotional campaigns, the mail room supervisor should be consulted in order that the enclosure may fall within the desired postage rate and that other considerations which will influence the success and cost of the campaign may be taken into full account.

It is possible for the mail room personnel to render effective cooperation with all divisions of the company in various matters which not only tend to insure proper and accurate handling of all classes of mail but which have a

bearing upon the speed, efficiency and cost of its handling. The selection of envelopes, particularly those to be used for air mail purposes, the decision as to whether correspondence should be forwarded by air mail or regular mail and the use of registered, special handling and other services are indicative of ways in which mail room cooperation may produce greater economy and effectiveness in the handling of the mail.

Communications

Necessity for Communications.—Good communications are necessary for any complex, organized effort. Naval architects, for instance, are especially aware of this fact, hence the elaborate facilities for communicating between different points within a battleship or carrier, from ship to ship and from ship to shore. Just as the navy depends upon its communications system for the successful maneuver of a single battleship or an entire fleet, so a business enterprise relies on its communications system for efficient operation.

A stream of messages, letters, checks, orders, inquiries, etc., continually enters the office and another stream of similar material leaves it. A large part of the work of the office consists of receiving, distributing and filing communications, and in formulating and dispatching communications within the office and to outside firms.

Internal and External Communications.—It is usual to speak of communications between the various persons and departments of a firm as "internal" communications and those between a firm and its customers, suppliers, etc., as "external." These are useful terms and will be employed in this discussion, but the distinction need not be over-stressed. For instance, communications with a branch office in a distant city are usually conducted through the same channels and in much the same ways as with a supplier or distributor located at an equal distance. Likewise, communications with a local firm with whom close relations happen to exist are apt to be much like those inside either firm.

Methods of Communication.—The principal methods of communication are:

1. By the voice or other sounds
 - (a) Direct, without reproduction
 - (b) Reproduced at a distance
2. By written or other significant material
 - (a) Physically transported to the recipient
 - (b) Reproduced at a distance

CHOICE OF METHODS.—The more important mechanisms and techniques involved in communication by the methods just outlined will presently be

discussed in some detail. A great variety of available facilities will be found of which several may be more or less suitable for a given communication task. The choice will be governed by consideration of the following factors:¹

1. The speed factor: Is speed more important than cost?
2. The cost factor: Is cost more important than the length of time it takes to deliver the communication?
3. The responsibility factor: Is it important that responsibility be fixed by having the communication in writing and a copy retained?
4. The error factor: Is it of prime importance that there be no misunderstanding and no errors in the transmission of the message or the communication, and that, therefore, a written rather than an oral method should be used?

Voice or Sound Communication.—Talking is the easiest and most natural way to communicate. For internal communication within a small office or department nothing more is needed. Likewise within a small building a gong can indicate the beginning and the end of a work period, sound a fire alarm or summon an executive.

In a larger establishment, means of extending the range of the voice or the gong must be provided. Megaphones or speaking tubes can do this cheaply within a short range, but they are unsuited to offices. The principal reliance today is on the telephone. The term includes a considerable variety of sound-reproducing equipment which will be discussed in the next few pages.

Most inter-office telephoning is done over standard instruments rented from the telephone companies. Similar equipment can be purchased, and it may be advantageous in some cases to do so. However, maintenance of owned equipment is a considerable responsibility and since private equipment cannot make outside calls, much duplication usually occurs.

In an office too small to require a switchboard, push buttons give each instrument access to each of the lines, for either internal or external calls. A larger office requires a private switchboard. This can be a manually operated board, but if dial instruments are in use a machine switching installation has many advantages. The cost of operation is less, connections are made more quickly, and the system is usable 24 hours a day.

Inter-office telephones of the general type sold as Dictograph, Teletalk, Flexiphone, etc., are very quick and convenient to use. The typical instrument is a small cabinet containing a microphone and a speaker, and equipped with labeled switches. To reach any other user, just flick the switch and talk. Note the remarks on owned equipment, above.

¹ Quoted by permission from Neuner and Haynes, *Office Management and Practices*, South-Western Publishing Co., Cincinnati, Ohio, 1941, p. 166.

Paging is done by code calls and by voice systems. Code calling systems integral with dial telephone systems can be operated from any telephone at any time. The disadvantages of code calls are (1) the limited number of short, easily recognizable code numbers possible, and (2) the frequency with which code calls fail of recognition and so go unanswered. Voice paging avoids both difficulties, but depends on an operator as the intermediary.

Public address systems are coming into greater use for special announcements and for work music, which seems to have established its value.

TELEPHONING IN EXTERNAL COMMUNICATION.—More than 100 million telephone calls a day pass through our public exchanges. This tremendous usage of the telephone is due, of course, to definite advantages.

Telephone calls are the fastest and most convenient of all methods of external communication. To local and nearby points they are the cheapest. Because the costs of dictating, typing, and mailing a letter are greater than is often realized, telephone calls may often be cheaper than letters up to 100 miles or more. Telephoning is two-way communication, so that questions can be answered, decisions made, and the conversation guided by the correspondent's observed reactions. When skillfully used for selling or collecting, telephone calls may be as effective as personal calls, with big savings in time and travel expense.

Like any other important tool, the telephone must be wisely used to realize the greatest value for the money spent. Most concerns either prohibit or limit the use of telephones for personal calls, to avoid wasting employees' time and tying up equipment. To eliminate tedious collections, pay telephones are often provided for employees' toll calls.

In cases where less expensive communications will serve as well, long distance calls should not, of course, be used. The time required for, and so the cost of, a toll can be reduced by planning the call and using prepared notes so that all necessary points are covered concisely. If the called party is likely not to have all necessary facts and figures handy, it may pay to notify him in advance by telegram of the intended call. Station-to-station calls cost less than person-to-person. If the called party is pretty sure to be available, or if more than one person in his office can answer the question, the station-to-station type of call should be placed. The results achieved by a telephone sales or collection campaign can readily be compared with the cost of the calls, thus determining the profitableness of the campaign.

Courtesy is as important in the use of the telephone as in face-to-face conversation. Here are a few suggestions for the pleasant and efficient use of telephones:

1. Identify yourself. When making a call, tell who you are, and in answering give your name instead of answering "hello."

2. Speak clearly in a pleasant, alert tone. The voice with a smile makes friends for yourself and the company.
3. Answer promptly. If a call is placed for you by your secretary or the operator, be especially careful not to keep the called party waiting before you come on the line.
4. Hang up gently. You can spoil a pleasant "good-bye" by jarring the ear off your caller.

Telephone companies are glad to give suggestions and supply printed materials which can be used in teaching the correct and courteous use of telephones.

Communication in Writing.—By far the larger part of written and equivalent communication is conducted through the mails. The writing of letters, their receipt and dispatch, and their circulation in the office are subjects of such importance that they are covered in separate chapters of this book. Only electrically transmitted messages will be discussed here.

Teletypewriter service (TWX) is the fastest and most flexible form of written communication. The machines are furnished by the Telephone Company, and are used much as are voice telephones. One consults a directory of TWX subscribers, places the call by number, and when the connection has been made, types the message simultaneously at both ends of the line. When the volume of transmissions requires operating the teletypewriter at maximum speed for extended periods it is actuated by perforated tape. One tape-sending machine can transmit the messages prepared by two or more perforator operators.

Forms can be filled out on the teletypewriter and they can be in manifold sets if desired. Copying of the material received can thus be eliminated. One teletypewriter can transmit to a dozen or more others simultaneously. The communication is two-way, so questions can be answered and figures repeated back for verification. The cost of a TWX connection runs 30% to 50% less than that of a voice connection. Machines are furnished without rental charge to customers able to offer a substantial volume of TWX business.

Telegrams are the least expensive form of electrically speeded written communication. They command attention without requiring instant interruption of whatever one's correspondent may be engaged in.

The cost of a ten-word telegram to points at various distances is about as follows: local, 24¢; 125 miles, 36¢; 250 miles, 51¢; 500 miles, 72¢; 1,000 miles, 85¢; 3,000 miles, \$1.44. At the longer distances these costs are one-third to one-fourth those of telephone calls. Day letters and night letters offer reduced rates for messages not requiring expedited handling. Serials and Longrams offer discounts for quantity on expedited and deferred

messages respectively. Several types of cable and radio service are available for overseas messages.

The handling time for messages between important business centers in the mid-west and the eastern coast usually runs between 10 and 30 minutes; between New York and the Pacific coast 30 to 60 minutes. Consistent progress is being made in reducing handling times, particularly over the longer distances.

Telegrams are handled between patrons and Western Union over the counter, by messenger, by telephone, and by teletypewriter ("teleprinter" in the industry). Furnished free to patrons who have a substantial volume of telegraph business, teleprinters handle most of the traffic between large users and the company.

Western Union handles messages between its offices by teleprinter and multiplex apparatus. Overhead wires are gradually being replaced with radio beams.

SPECIAL FORMS OF TELEGRAPH.—The Telautograph is an instrument for electrical reproduction of handwriting over relatively short distances as between office and shipping room or between hotel registration desk and floor clerk. Communication can be two-way but the receiving station need not have a continuous attendant.

Facsimile transmission of pictures, maps, etc., is widely used by newspapers and may soon be available to the general public. Stock quotations are transmitted by special tickers. Tabulating cards can be instantly reproduced in a distant city. Space does not permit discussion of these and other specialized forms of electric message transmission.

Lines can be leased from the telephone companies for either voice or teletypewriter service, and from Western Union for teleprinter service. As the monthly rental of a line costs as much as several hundred individual messages, leasing is advantageous only to firms requiring a large volume of service between two establishments.

Periodic Survey of Method Advisable.—A great variety of devices and services are available for high-speed communications; internal and external, oral and written. The variety is increasing, and the relative value of facilities changes as new ones are offered and as prices and rates are revised. To keep abreast of developments is no small task. The telephone and telegraph companies' representatives are generally competent and reliable. It is profitable for the office manager to discuss communications and his particular problems with them from time to time. If he is fully conversant with the possibilities and has in mind the four considerations governing choice of methods, the office manager should not find communications difficult to handle satisfactorily.

Reproduction ²

Reproduction Problems.—There are nine basic reproduction problems common to office work :

- A. Reproduction of the primary copy (without halftones). (Record forms, reports, charts, checks, letterheads, bulletin heads, advertising literature, envelopes, tags, and labels.)
- B. Reproduction of the text or message (without halftones). (Form letters, bulletins, letters, and memos.)
- C. Reproduction of the primary copy and/or text requiring halftones. (Bulletins and advertising literature with halftone illustrations.)
- D. Fill in of variable data on sheets of the same kind of primary copies. (Fill in by longhand, writing machine or duplicating machine.)
- E. Fill in of variable data on different kinds or sizes of primary copies. (Fill in by longhand, writing machine or duplicating machine.)
- F. Transfer posting of an individual line from a master list to individual sheets. (Each line of a journal sheet is transferred to separate ledger sheets.)
- G. Insertion of repetitive data on separate individual sheets of primary copies. (Inserting or imprinting a name, address, number, date, size, etc., on individual sheets.)
- H. Inserting or imprinting facsimile signatures.
 - I. Imprinting agent's name and address on advertising literature. (Imprint for sales office, branch, dealer, distributor, etc.)

There are nine possible combinations of the above :

- J. Reproduction of "A" and "B" at the same time.
- K. Reproduction of "A" and fill in of "D" at the same time. (Requires preprinted hectograph master, die impressed stencil, or direct process offset plate.)
- L. Reproduction of "A" and the insertion of "G" at same operation.
- M. Reproduction of "A" or "C" and the imprinting of "I" at the same time.
- N. Reproduction of "A", fill-in of "D", and insertion of "G" at the same time.
- O. Reproduction of "B" and the insertion of "G" at the same time.
- P. Reproduction of "B" and imprinting of "H" at the same time.
- Q. Reproduction of "B", insertion of "G", and imprinting "H" at the same time.
- R. Fill in of "D" and imprinting "H" at the same time.

² Prepared for the joint use in *NOMA Handbook* on office management and the *Office Magazine* in which it appeared in April, 1946.

Reproduction Processes.—There are ten basic reproduction processes available for solving these problems.

1. Carbon Paper
2. Automatic Typewriter
3. Hectograph Duplicator
4. Stencil Duplicator
5. Relief Printing
6. Offset Duplicator
7. Photography (Using Camera)
8. Contact Print
9. Impression Stamp
10. Addressing Machine

Note: Check protector, postage meter machine, tabulating machines, facsimile equipment and other processes such as oil paper stencils, silk screen, engraving, embossing, stone lithography, pen ruling, and the various high speed presses which are uncommon in an office are disregarded.

Each of the ten basic processes have several variations that multiply the possibilities for solving reproduction problems. In fact there are so many possibilities that anyone unfamiliar with all the ramifications of reproduction becomes confused; therefore, this analysis has been developed as a measuring stick to help solve reproduction problems the most practical way.

Control of Reproduction.—To control reproduction so that advantage may be taken of minimum costs, improved quality, standard sizes, increased production and to expedite service, all reproduction requests should clear through one central point, and be handled by individuals thoroughly familiar with all the possibilities, characteristics, limitations and comparative quantity production costs of all processes available within the organization.

In most cases a problem can be solved by two or more processes and usually the deciding factors are: (1) quantity required, (2) quality of copy required, (3) master available, (4) design of the copy, (5) layout cost for preparing master, stencil plate or type setting, (6) combination runs (two or more up or front and back on the same plate), (7) equipment limitations such as; (A) thickness of paper or card stock, (B) minimum and maximum sheet size, (C) maximum printing area (D) style type, and (E) gripper or margin required, (8) time element or urgency for completing the job, (9) preservation of master, stencil plate or type for reruns, and (10) over-all cost of the finished job (your cost compared to outside prices).

Selecting the Process.—These questions must be answered to determine the best applicable process.

1. What is the reproduction problem? (Problems A-I)
2. Can two problems be solved in one operation? (Problems J-R)

REPRODUCTION GUIDE

REPRODUCTION IS THE DUPLICATION OF ONE OR MORE COPIES OF AN ORIGINAL.

Use this guide to determine the applicable process for solving specific reproduction problems for producing various quantities of copies.

BASIC REPRODUCTION PROBLEMS

- A - REPRODUCTION OF THE PRIMARY COPY (WITHOUT HALFTONES) - Reced forms, reports, charts, letterheads, bulletin heads, advertising literature, etc.
- B - REPRODUCTION OF THE TEXT OR MESSAGE (WITHOUT HALFTONES) - Form letters, bulletins, letters, and memo's.
- C - REPRODUCTION OF THE PRIMARY COPY AND/OR TEXT REQUIRING HALFTONES - Bulletins and advertising literature with halftone illustrations.
- D - FILL IN OF VARIABLE DATA ON SHEETS OF THE SAME KIND OF PRIMARY COPIES - Fill in by longhand, writing, duplicating or addressing machine.
- E - FILL IN OF VARIABLE DATA ON SHEETS OF THE SAME KIND OF PRIMARY COPIES - Fill in by longhand, writing, duplicating or addressing machine.
- F - TRANSFER POSTING OF AN INDIVIDUAL'S NAME OR ADDRESS TO A SHEET OF PRIMARY COPIES - Reproducing a name, number, size, etc. on individual sheets.
- G - INSERTION OF RELEVANT DATA ON SEPARATE INDIVIDUAL SHEETS OF PRIMARY COPIES - Inserting a name, number, size, etc. on individual sheets.
- H - INSERTING OR IMPRINTING FACSIMILE SIGNATURES.
- I - INSERTING AGENT'S NAME AND ADDRESS ON ADVERTISING LITERATURE - Reprint for sales office, branch, dealer, distributor, etc.
- J - REPRODUCTION OF "A" AND "B" AT THE SAME TIME.
- K - REPRODUCTION OF "A" AND FILL IN OF "D" AT THE SAME TIME.
- L - REPRODUCTION OF "A" AND THE INSERTION OF "G" AT THE SAME TIME.
- M - REPRODUCTION OF "A," "B" OR "C" AND THE IMPRINTING OF "I" AT THE SAME TIME.
- N - REPRODUCTION OF "A," FILL IN OF "D," AND INSERTION OF "G" AT THE SAME TIME.
- O - REPRODUCTION OF "A," FILL IN OF "D," AND IMPRINTING OF "H" AT THE SAME TIME.
- P - REPRODUCTION OF "B," INSERTION OF "G," AND IMPRINTING OF "H" AT THE SAME TIME.
- Q - REPRODUCTION OF "B," INSERTION OF "G," AND IMPRINTING "H" AT THE SAME TIME.
- R - FILL IN OF "D" AND IMPRINTING "H" AT THE SAME TIME.

COMBINATIONS OF THE ABOVE

X - INDICATES THE MOST PRACTICAL PROCESSES APPLICABLE TO THE SPECIFIC PROBLEM.
O - INDICATES POSSIBLE PROCESS APPLICATION USED ONLY IN REMOTE CASES.

INDEX	REPRODUCTION PROCESSES		REPRODUCTION PROBLEMS																			PRACTICAL RUN- QUANTITY COPIES (APPROXIMATE)
			COMBINATION																			
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R		
1	CARBON PAPER	PENCIL - LONGHAND		X		X	X	X													5	
		NOISELESS TYPEWRITER		X		X	X														10	
		STANDARD TYPEWRITER		X		X	X														15	
		ELECTRIC TYPEWRITER		X		X	X														20	
		ACCOUNTING OR BOOKKEEPING MACHINE ADDRESSING MACHINE					X	X	X												5	
2	AUTOMATIC TYPEWRITER	PARAGRAPH SELECTION	X	X			X													5		
		COMPLETE LETTERS	X	X			X														5	
3	HECTOGRAPH DUPLICATING	MASTER PREPARED USING PENCIL, INK OR TYPEWRITER RIBBON INDIVIDUALLY	X	X	X	X	X	X										X			10	
		PREPARED USING HECTOGRAPH CARBON PAPER	X	X	X	O	O											X			10	
		PREPRINTED MASTER	O										O	X							50	
		MASTER PREPARED INDIVIDUALLY	X	X	X	X	X											X			50	
		PREPRINTED MASTER	O											O	X						50	
		SPIRIT (DIRECT FLUID)																			5	
		SPIRIT (FORCED FLUID) LINE TRANSFER POSTING						X													5	

3. How many copies are required? (This should be determined by usage requirements and not by guess. Use the Reproduction Guide (Figure 133) for approximate quantity limitation for the various processes.)
4. Which reproduction processes can be considered for the job? (Use the Reproduction Guide to determine which processes are applicable for each specific problem.)
5. Which process is the most practical and economical for the quantity and quality required? (This must be decided by analyzing the advantages and limitations of the applicable processes.)

How to Use the Reproduction Guide.—The method of using the reproduction guide is as follows :

1. Ascertain the code letter that applies to the reproduction problem from the top portion of the guide—Basic A–I or Combination J–R (Example: Problem “B”—“Reproduction of Text or Message—without halftones”).
2. Determine the quantity of copies required. (Example: 1,000 copies needed.)
3. First, refer to the proper reproduction problem code letter (Example: Code “B”) and the quantity copies required (Example: 1,000 copies) in the headings of the guide; then refer downward simultaneously on both until you come to a horizontal bar in the quantity column which also has an “X” in the same horizontal space at the intersecting problem column and this reveals the various processes applicable for this problem. Example: There are seven processes which can be used for this reproduction problem for the quantity required.
 - (a) Stencil Duplicator—Stencil prepared individually
 - (b) Relief Printing—Rotary Duplicator—Type set or line slugs
 - (c) Relief Printing—Flat-Bed Duplicator and addresser—embossed plate
 - (d) Relief Printing—Flat-Bed Press—Type set or line slugs
 - (e) Offset Duplicator—Direct Process Plates—Plates prepared individually
 - (f) Offset Duplicator—Photo Process Plate from Opaque Stencil
 - (g) Offset Duplicator—Photo Process Plate from Photo Negative

Note: The “O” indicates that a process can be applied but should be used only in exceptional cases.

Carbon Paper.—Carbon paper is the most commonly known means of reproducing copies because of its universal use. There are basically two types of carbon: (1) one made for writing longhand with pencil and the

other (2) for use with typewriter or other writing machines. (Hectograph carbon paper is covered on page 630.) Both types are available in sheets or rolls, four weights of tissues (Light, medium, standard and heavy), with three carbon finishes (Hard, medium and intense) and in five colors (Black, blue, purple, green and red). It can be had with carbon coated on one side (Semi) or coated on both sides (Full or double face) or coated saddleback (Partially coated one side and partially coated on the other side—usually used for making triplicate billing copies by dropping the fold down over the center sheet).

Spot carbon or strip carbon placed at any location on the back of a form or on a separate carbon sheet permits reproducing the copy at that location and deletes the copy on the balance of the form. (Note: Printed blackout on any portion of the form or short size carbon paper can be used instead of spot or strip carbon.)

Inexpensive carbon paper known as "One-time carbon paper" is available for longhand or machine. This is commonly used in unit block, snap out, and continuous forms in sets. Forms can be printed on carbon-back paper to eliminate inserting carbon paper.

Accounting machines and bookkeeping machines are available for preparing the register or journal sheets and in the same operation reproduce carbon copies of the single writing line on individual ledger sheets, checks or vouchers. Special sheet or card holding devices for collating and registering various forms are available for getting the same result with longhand posting.

Many factors must be considered when a quantity of legible machine copies are required: (1) weight of the carbon tissue, (2) intensity of the carbon, (3) weight of the paper stock, (4) kind of machine (standard, noiseless, electric typewriter or other machine), (5) degree of hardness of the platen, and (6) the touch of the operator.

Automatic Typewriter.—(Auto-Typist) An automatic typewriter reproduces individually typewritten form letters or letters made up of form paragraphs mechanically from a pneumatically operated perforated record roll. It is usually used for sales letters, collection letters and answers to inquiries.

The operator types the individual name, address and salutation manually and the body of the letter is typed mechanically, stopping at predetermined points for insertion of fill-ins, such as, names, balances, dates, etc. The manual typing and the mechanical typing match because both are done on the same machine, using the same ribbon.

One operator can handle as many as four machines, or on single installations she can do other typing, clerical work, or operate a switchboard while the automatic typewriter is in operation.

Hectograph Duplicating Process.—There are three methods of hectograph reproduction: (1) gelatin, (2) spirit-direct fluid (sometimes called “liquid” or “direct”), and (3) spirit-forced fluid. Each requires a special type of machine, and the masters are prepared differently.

GELATIN HECTOGRAPH PROCESS.—(Ditto, Autocopy, and Beck) The hectograph copy is placed on the face of the master by longhand or typewriter, and the hectograph ink is transferred to a gelatin roll on the machine (flat bed or rotary) and as blank paper is fed through the machine, the hectograph image is transferred to the paper.

For best results, the masters should be prepared on hectograph master paper or on master units and the copies reproduced on hectograph stock.

Masters can be prepared by using either hectograph pencil, pen and hectograph ink, hectograph carbon paper, or hectograph typewriter ribbon. These are available in a variety of colors, but purple is most efficient. Masters prepared by carbon paper or unit sets produce the best results and more legible copies, but increase the cost.

Drawing should be done on a hard, smooth surface. Drawings can be traced on the master by using a drawing scope, (1) having the copy below or (2) through carbon paper by having the copy on top. Lettering guides can be used for hand lettering.

The master can be a printed form of hectograph ink, and the copy or text can be inserted by longhand or by typewriter so that the form and the fill-in can be reproduced at the same time.

Errors on masters can be corrected by using correction fluid or white blockout pencil. If space having error is not to be retyped or redrawn, the unwanted portion may be cut out with a safety razor blade. Master can be used only one time.

Some of the outstanding advantages of this process are: (1) copies are made direct from the original writing, typing or drawing; (2) several colors can be reproduced at the same time; (3) two or more masters can be made at one time; (4) any portion of the image can be deleted by masking out; (5) data may be written at one place and copies made at another; and (6) fill-in can be made on preprinted masters and both reproduced at the same time.

SPIRIT HECTOGRAPH PROCESS—DIRECT FLUID.—(Ditto and Standard) The master is prepared by longhand or typewriter. The written, drawn or typed matter is placed on the face of the sheet and a reverse piece of hectograph carbon paper (coated side up) under the copy transfers the image to the back of the sheet in reverse. (The back of the sheet becomes the master.) The master is placed on the drum of the machine (Hectograph ink image up) and the copies are reproduced by transferring directly from the master by the application of a special liquid.

For best results, the master should be prepared on hectograph master paper using spirit process carbon paper or on spirit master units and the copies reproduced on hectograph stock. Hectograph spirit carbon paper is available in five colors (purple, black, blue, green, and red) but purple is the most efficient. Hectograph carbon paper cost can be reduced by using carbon paper ribbon in an IBM Hektowriter. (This typewriter can also be used for preparing gelatin masters.)

Master unit sets are fold-over sheets of 20-pound hectograph master paper. The top sheet is plain and the bottom sheet is coated with hectograph carbon on the inside so that the hectograph image can be transferred to the back of the top sheet (in reverse) when the drawing or typing is placed on the face of the top sheet. (The same unit sets can be used for gelatin process by typing or writing on the other side of the set.) These sets have a tissue divider inserted in the set to keep the carbon from smearing on the master paper. The insert sheet should remain in the set while marking off or placing guide lines on the copy but must be removed when preparing the copy.

Drawing should be done on a hard, smooth surface using a #3 pencil with a fine point. Drawings can be traced on the master by laying the original on top of the master. Guides can be used for hand lettering.

The master can be a printed form, having black legible printing on the face and hectograph ink printing in reverse on the back. The copy or text can be inserted by longhand (pencil) or by typewriter so that the form and the fill-in can be reproduced at the same time. The preprinted master can be one color (green) and the fill-in another color (purple) permitting two color contrast in one operation. On short runs, the master can be saved and reruns made until the hectograph ink is used up. Additions, changes or corrections can be made after the original run to reproduce revised copies on reruns.

Errors on masters can be corrected by using correction fluid or white blockout pencil. If space having errors is not to be retyped or redrawn, the unwanted portion may be cut out with a safety razor blade.

Some of the outstanding advantages of this process are: (1) copies are made direct from the original writing, typing or drawing; (2) several colors can be reproduced at the same time; (3) two or more masters can be made at one time; (4) any portion of the image can be deleted by masking out; (5) data may be written at one place and reproduced at another; (6) fill-in can be made on preprinted masters and both reproduced at the same time; (7) data may be recorded as accumulated and copies made when completed or fill-ins made after the first run can be added; and (8) master can be used over and over again at different times and different places.

SPIRIT HECTOGRAPH PROCESS—FORCED FLUID.—(IBM Transfer Posting Machine) The master is prepared by typewriter or tabulating machine in

journal or list form on a light-weight porous paper. The typed or printed matter is placed on the face of the sheet and a reverse piece of special hectograph carbon paper (coated with a combination of wax and dyes that are soluble in the fluid) under the copy transfers the data to the back of the sheet in reverse. (The back of the sheet becomes the master.) The master list is inserted in the machine carriage and individual lines of the list are transferred to individual cards or sheets by forcing the fluid under pressure through the porous master, depositing the carbonized data on the document being posted.

The master list must be double spaced, three lines to the inch. The machine transfers entire lines of printed data, one at a time, from the master sheet (a list, register or journal) to selected individual sheets (ledgers, stock records, sales records, or other accounting records). The master is not injured by the process and can be retained as the original report. The master can be used the second time to make a maximum of two legible transfer postings of each line.

Stencil Duplicating Process.—(Mimeograph, Niagara, Tempagraph, Speed-O-print, Rex-O-graph, Heyer, Mercury, and others) Stencils are made of a tough fibrous tissue having a texture impervious to ink. The image to be reproduced is cut into the stencil by typewriter or stylus. The cut stencil is placed around the drum of the machine and the pressure on contact with the paper forces the ink from the drum ink pad through the cut stencil to reproduce the image.

A stencil is made up in a set, consisting of the stencil tissue (blue or white) and a backing sheet. Limitation lines (maximum image area) are printed on the stencil. Horizontal and vertical typewriter spacing (pica and elite) are printed on the margins to facilitate copy layout.

Stencils for line work, drawing or hand lettering are prepared on a drawing scope, and a stylus is used for cutting the image into the stencil. The backing sheet is either removed or rolled out of the way and a celluloid flexible writing plate is placed between the stencil and the glass of the scope. Several types of styli are available for different breadth of lines or for dash or dotted lines. Screen and plastic plates are used for shading. Lettering guides of various styles of type and sizes are used for hand lettering. Drawings can be traced on the stencil by placing the original under the celluloid writing plate in the drawing scope which permits light (electric light) to penetrate through the original and the stencil for tracing the image.

A tissue cushion sheet is placed between the stencil and the backing sheet when preparing a stencil on a typewriter. A transparent light-weight sheet of plicofilm placed on top of the stencil facilitates a clear-cut copy, eliminates cutting out interiors of letters and keeps the type clean. (The cushion sheet and the plicofilm sheet can be reused.) A transparent cellulose ribbon

(Lumirol Company), wound on a typewriter ribbon spool, can be used instead of the pliofilm sheet. This replaces the fabric ribbon spool.

Photographic (prepared by a photo chemical process) or die-impressed inserts of illustrations, cartoons, etc. can be stripped in with the regular typewritten copy.

The die-impressed image is cut into the stencils by using an electro-plate on a printer's letter press. The die-impressed copy can be a form, letterhead, or bulletin-head and the text is inserted by longhand or typewriter so that the form and the fill-in or text can be reproduced at the same time. White die-impressed stencils use a special tissue carbon sheet inserted between the stencil and backing sheet so that the electro-plate impression and the insert copy make a carbon copy on the backing sheet, permitting the backing sheet to be used as the record.

Water soluble ink produces quality work on regular sulphite stock eliminating the necessary for special porous stock. Offset on the back of the copy can be eliminated by using an interlayer for slip sheeting.

Master control sheets (Shallcross Company), an especially treated blue tissue sheet mounted on a backing sheet, can be used to control the flow of ink and improve the quality of work. Control sheets are made in four different degrees to control ink flow for various conditions. The control sheet placed on top of the ink pad between the ink pad and the stencil can be used a number of times. Its use results in: (1) conserving ink, (2) making sharper copy by reducing the amount of ink per impression, (3) reducing offset on the back of the copy, and (4) preventing excess ink from clinging to the stencil, making it easier to clean and preserve stencil for rerun.

Errors can be corrected on the stencil by burnishing and applying a coat of correction fluid over the area to be corrected.

Some of the outstanding advantages of this process are: (1) copies are made direct from the stencil; (2) any portion of the image can be deleted by masking out; (3) two or more colors can be reproduced at the same time by separating colors on the ink pad; (4) illustration inserts can be stripped in with typed copy; (5) fill-in can be made on die-impressed stencils and both reproduced at the same time; and (6) stencils can be cleaned and preserved for reruns.

Relief Duplicating and Printing Process.—Relief printing is the means for reproducing copies from type or plates in which the image is raised. There are five types of machines designed for this purpose: (1) rotary duplicator, (2) flat-bed duplicator, (3) flat-bed duplicator and addresser, (4) Signature imprinting machines, and (5) flat-bed printing press.

ROTARY DUPLICATOR.—(Multigraph and Davidson) Hand-set type, line slugs, embossed metal strips, rubber plates or curved electrotype plates are

mounted on a drum segment and reproduction can be made by using either printing ink or inked ribbon.

A typesetter rack housing all letters, figures and characters, and a composing fork are used for setting type by hand. Type can be distributed back into the typesetter rack for reuse; however, typewriter-style type (pica or elite) costs so little that new type can be bought for the labor cost of distribution of used type. Using new type for each job assures quality work. An electrically operated typesetting machine, controlled by a typewriter-style keyboard can be used for composing "loose" type when the volume justifies.

Segments are available with vertical or horizontal channels spaced six or four to the inch. Special segments can be made to order.

Printing ink is obtainable in a variety of colors. Ribbons may be had in black, blue, purple, green, and red. Ribbons may be reinked when they become dim.

The rotary duplicator can be used for other miscellaneous operations, such as imprinting, perforating, scoring, signature imprint, and consecutive numbering. Some of these operations can be performed at the same time the copy is being reproduced while others require a separate run.

FLAT-BED DUPLICATOR.—(Addressograph Imprinter) One or more embossed metal plates of five to seven lines per plate are assembled into a frame to compose the master record for imprinting. The frames holding the embossed plates are laid on the printing bed of the machine and the required number of imprints are reproduced through a ribbon. The plates are indexed and filed for reuse.

Many kinds of printing devices may be used separately or in conjunction with the flat-bed duplicator. Numbering units for writing quantities; type channels containing linotype slugs, hand-set short type and electrotpe plates may be used. This machine may be equipped with counter, cut-off, dater, and numbering device.

The application of this duplicator is for imprinting repeated and variable data on production orders, bills of material, specifications, inventory sheets, job cards, tags and various record forms.

FLAT-BED DUPLICATOR AND ADDRESSER.—(Dupligraph) The type, usually typewriter-style type, is embossed into metal plates (8 lines per plate) and the composed letter is placed on the form carrier of the machine. Metal address and salutation plates, embossed in the same typewriter-style type, for each name on the mailing list are fed mechanically (with print or skip feature) through the machine and complete personalized letters with name, address, salutation, date and signature are reproduced in one operation.

The finished letter and fill-in closely resemble individual typewriting because all are reproduced through the same ribbon, from typewriter type embossed from the same machine reproduced at one time. The signature

looks like individual handwriting, because it is reproduced from a facsimile signature plate using any color signature ink.

SIGNATURE-IMPRINTING MACHINES.—(Todd, National Cash Register, Monroe Calculating, Standard Register, Moore Business Forms, Multi-graph, Davidson, Addressograph, and Elliott Addressing.) There are a variety of signature-imprinting machines for reproducing facsimile signatures and the individual problem determines the kind of machine that can be applied. Machines are designed to handle individual cut forms, forms in gangs or continuous forms. Gang forms and continuous forms machines usually have attachments for separating and stacking the individual forms.

Most of the machines imprint from a metal plate using either signature ink or ribbon of various colors. One machine imprints from stencil cards.

Facsimile signatures can be imprinted separately or in combination with other operations.

FLAT-BED PRINTING PRESS.—Hand-set type, linotype or monotype slugs, rubber plates, or electrotpe plates may be used on a flat-bed printing press. These are clamped into a chase which fits the bed of the press. The ink is applied by rollers and the image is reproduced onto the paper or card stock by pressure.

Perforating, scoring, and consecutive numbering can be performed on this press at the same time the copy is reproduced.

FLAT-BED RELIEF PROOF PRESS.—(Vandercook, Hacker, and Potter) Flat-bed relief proof presses are available in a number of sizes, either manually operated or power driven, with hand inking in a single color or with automatic inking of one to four colors. All relief proof presses are operated on the same principle: (1) the type chase or plate is placed on the flat bed of the press; (2) the printing surface is inked with a composition hand roller-brayer; (3) the paper is placed on top of the type or plate (paper is automatically fed on some machines); and (4) a heavy cylinder is rolled over the paper to make the impression.

A proof press is primarily used in preprinting (pulling proofs) so that corrections can be made in the type-set copy, linotype copy or plate before printing on a letter press. It is also used to check registration when two or more plates are required. Special machines are available for making impressions on transparent sheets of cellophane or glassine which are used in converting letterpress copy to offset plates without the use of a camera or for making contact prints or contact negatives.

A proof press can be used to advantage in the office when only a few copies are required: (1) printer's type composition can be reproduced to be cut apart and pasted on master drawings for photo offset reproduction; (2) simple price sheets requiring price changes can be reproduced economically

in small quantities; and (3) signs or notices requiring large type can be reproduced on card stock in sizes larger than the maximum image or sheet size of a duplicating machine.

Note: A relief proof press can be converted into an offset proof press. This is explained in the "Offset" section.

Offset Duplicating Process (Planograph—Photo Lithography).—(Multilith, Davidson, and Webendorfer) The image to be reproduced is of an oil base and is placed on the plate as a "positive" (appears same as the original or the finished copy). The flexible plate is placed on a cylinder of the machine in contact with a repellent dampening roller and the ink rollers. As the plate cylinder revolves, the ink is distributed on the image and the repellent moistens the balance of the plate surface so that the ink will not cling in the remaining area. The inked image is transferred to a rubber blanket and as the paper passes between the rubber blanket and an impression cylinder, the image is offset onto the paper. Reproduction can be made on all weights and grades of paper and card stock.

There are eleven ways of preparing the master or plate: (1) typewriting, (2) carbon tracing, (3) writing, (4) shadow tracing, (5) drawing, (6) pressure transfer, (7) painting, (8) mechanical transfer, (9) opaque stencil transfer, (10) ruling, and (11) photography.

Three different mediums can be used for preparing offset plates. Each medium has advantages particularly suited to certain classes of work.

1. Direct Image on paper, plastic or metal plate.
2. Opaque Stencil image transferred to zinc or plastic plate.
3. Photographic Image transferred to zinc or plastic plate.

DIRECT IMAGE.—(Duplimat and Lithomat Paper Plates or Plastic and Metal Plates) Water-color pencils (any color) can be used for guide lines and general layout of the copy. These lines do not have to be erased because they will wash off of the plate when the liquid repellent is applied to the plate.

The image is applied directly to the smooth-coated surface of a paper, plastic, or metal plate. The image can be drawn, written, ruled, lettered, painted, typed, or traced on the plate using either pencil, crayon, ink, carbon paper, fabric or carbon typewriter ribbon, brush or air brush. The image may also be a mechanical transfer from printing type on plate or it may be a pressure transfer especially prepared for this purpose. Only materials having an oil base and especially designed for applying images direct to the plate will reproduce.

Plates must be handled carefully during preparation because fingerprints and typewriter roller impressions will print if not clean. Errors may be corrected by using a soft, clean rubber eraser or special correction solution. Plates can be preserved for reruns.

Some of the outstanding advantages of this process are: (1) copies are made direct from the original writing, typing, painting, or drawings; (2) fill-ins can be made on preprinted plates and both reproduced at the same time.

OPAQUE STENCIL TRANSFER.—(Stenalith) Opaque stencils are made of a tough fibrous paper which is photographically opaque. The image to be reproduced is cut into the stencil by a typewriter or stylus. The cut stencil becomes the medium for transferring the image onto the offset plate by passing bright arc light through the image apertures which affect the sensitized zinc or plastic offset plate.

A stencil is made up in sets similar to the stencil used for stencil duplicating. A set consists of an orange colored stencil paper and a backing sheet. Typewriter guide lines and numbers are printed on the stencil to facilitate typing and copy layout.

Stencils for line work, drawings or hand lettering are prepared on a drawing scope, and a stylus is used for cutting the image into the stencils. The backing sheet is either removed or rolled out of the way and a celluloid flexible writing plate is placed between the stencil and the glass of the scope. Several types of styli are available for different breadth of lines or for dash or dotted lines. Lettering guides of various styles of type and sizes are used for hand lettering. Screen and plastic plates are used for shading. Drawings can be traced on the stencil by placing the original under the celluloid writing plate in the drawing scope which permits sufficient light (electric light) to penetrate through the original and the stencil for tracing the image.

To facilitate proofreading of copy, a special sheet of blue carbon paper is inserted in reverse (carbon side up) between the stencil and the backing sheet. This carbon sheet also acts as a cushion sheet. A light-weight (transparent) sheet of pliofilm placed on top of the stencil permits clear cut copy and eliminates cutting out interiors of letters. (The cushion sheet and the pliofilm sheet can be reused.)

An opaque stencil can be spliced to a photographic negative of a letterhead or bulletinhead so that both appear on the offset plate. This permits running the complete job in one operation. Photographic negatives of line illustrations or halftones may be stripped into a typewritten stencil.

Errors in the stencil can be corrected by rubbing the incorrect copy with a burnisher to close the perforations and applying a coating of blackout compound over the area to be corrected. Opaque stencils can be filed for future use. Stencils can be revised by cutting out the incorrect portion and by the insert or strip in of the revised copy.

Some of the outstanding advantages of the process are: (1) clear-cut copy can be reproduced from typewriter type or drawings; (2) typewritten

text can be spliced to photographic negative and both reproduced at the same time; (3) halftone negative or line illustration can be stripped to a type-written stencil and both reproduced at the same time.

PHOTOGRAPHY TRANSFER.—Any image that can be photographed (line work or halftone) can be reproduced by this method. A clean-cut, sharp, contrasting original makes the best reproduction. The photographic negative becomes the medium for transferring the image onto the offset plate by passing bright arc light through the transparent image which affects the sensitized offset plate. (See section on Photography for further details on photographic negatives.)

The means for preparing the master are unlimited. It can be an existing copy or it may be originated to requirements.

Existing Copy. Existing copy such as letters, books, advertisements, photographs, drawings, maps, forms, magazine or newspaper articles can be reproduced by photographing the original. The reproduction can be the same size as the original, or it can be enlarged or reduced in size. Changes can be made by deleting the undesired copy and adding additional copy.

Preparing Master for Line Drawings and Record Forms. Masters should be prepared on a good quality of white drawing stock. Use a light blue colored pencil for drawing guide lines and a general layout of copy. Guide sheets, printed in light blue, having horizontal lines at typewriter spacing (3 to 6 per inch) and vertical lines for either pica (10 per inch) or elite (12 per inch) should be used for drawing machine forms to insure accurate spacing. Light blue does not photograph on orthochromatic negatives.

Ruling pen should be used for straight lines. Black India ink should be used for all lines and art work.

Compositions requiring printer's type can be set up on a relief duplicator or proof press and sufficient number of clear-cut proof copies made. The composition is cut to requirements with scissors and pasted in place with rubber cement. Typewritten composition can be typed direct to the master, or can be cut and pasted in place.

Use a "Type Chart" for selection of printer's type sizes and style. A photocopy of the type chart reduced one fourth and one half size facilitates selecting type for drawing that will be reduced in size for final copy.

When text requires considerable composition, the type should be set up by linotype purchased on the outside and proofs used for the layout. Type-written text should be used when practical. The Vari-Typer, a composing typewriter having curved metal segments, permits interchanging type fonts for various styles and sizes of types. This machine has attachments for changing the horizontal spacing of type and automatic justification of right-hand margin. Impression can be made from inked fabric ribbon or carbon paper ribbon. The Electromatic carbon ribbon typewriter has proportional

character spacing of 12 point book type. Some standard typewriters are equipped to use carbon paper ribbon and to justify the right-hand margin.

When an area of any size requires a solid of ink, it is best to paste a black piece of masking paper of the proper size and shape on the copy rather than fill in with brush and ink.

Various Ben Day shading patterns of dots and lines printed in black ink or white ink on cellophane can be pasted over the area requiring shading. The black shading is used to break up white areas, and the white shading is used to tone down black solid areas. Unlimited patterns can be worked out by placing one sheet of a pattern over another pattern.

When quality work is required for hand lettering, designs or drawings, it is advisable to prepare the original at a convenient working size and imperfections can be minimized by reducing the size by photography. Forms requiring close work or paste-up of small type copy can be drawn larger than the required finished copy to facilitate layout work and then reduced to proper size.

The finished copy must be clean and free of excess rubber cement. The master or original drawing can easily be corrected or revised for reprints. This can be done by applying Chinese white paint over the portion to be corrected or by using a corrected or revised copy pasted over the incorrect area.

Some of the advantages of this process are: (1) any copy that can be photographed can be reproduced—existing copy or prepared copy; (2) copy can be enlarged or reduced in size; (3) only one master is required for printing two or more up on a plate—step and repeat or paste-up of several Van Dykes made from the original; (4) halftones of photographs can be reproduced; (5) Ben Day shading effects and block cuts can be used effectively; (6) longhand writing can be reproduced; (7) plate can be preserved for reruns; (8) zinc plates can be regained for reuse when the image on the plate is obsolete.

FLAT-BED OFFSET PROOF PRESS.—(Hoe, Hall, Rutherford, Fuchs & Lang)—Flat-bed offset proof presses are not commonly used in the office due to the cost of the press and its limited application; however, with the expanding use of offset reproduction, variations of this type of machine will be applied in the future for reproducing short runs of sizes larger than the maximum size of duplicating machines.

The principle of this offset process is the same as previously explained, but the operation of the press is different. The offset plate is placed flat on the bed of the press. The repellent is covered over the plate with sponge or cheesecloth and the ink is rolled on with a brayer. A hand-operated cylinder is rolled over the plate and the inked image is transferred to the rubber blanket which covers the cylinder. The paper to be printed is spotted

at another location on the flat bed to register with the plate. The image offsets onto the paper as the cylinder passes over the paper.

CONVERTED FLAT-BED PROOF PRESS—RELIEF TO OFFSET.—A flat-bed relief proof press can be converted into an offset proof press by placing a filler in the bed of the press which raises the bed to the same height as the bottom part of the cylinder.

The offset plate must be made in reverse (mirror image). This is done by (1) turning the negative upside down for photographic zinc plates, or (2) by drawing the image upon grained litho transfer paper with litho crayons or ink and then transferring the image from the water-soaked paper transfer face down on the wet zinc plate by running both through the press with heavy pressure.

The offset plate is placed flat on the bed of the press. The repellent or water is covered over the plate with sponge or cheesecloth and the ink is rolled on with a brayer. The paper to be printed is placed on top of the plate and a hand-operated cylinder is rolled over both and the inked image is transferred direct from the plate on to the paper.

Photography.—There are three basic methods of reproduction by photography: (1) photographs, (2) photocopy, and (3) microfilm, and each requires a special type of camera equipment.

PHOTOGRAPHS—NEGATIVES AND PRINTS.—(Using commercial camera) —There are four sensitized materials used for making photographic negatives: (1) paper, (2) combination paper and cellulose, (3) cellulose—film, (4) glass. The first two are used for line work only and the latter two can be used for either line work, halftone or continuous tone.

Line work is the most common application in the office. The negatives are used for making photographs, offset plates or wet contact prints (Blueprints or Van Dyke prints with white background can be reproduced economically from negatives.) Halftone negatives can be made from photographs by using a screen in the camera box. Continuous tone photographs (a graduated tone of black and gray), such as the glossy print, require a different type negative and printing paper.

The negative or finished copy can be reproduced the same size as originals, or they can be enlarged or reduced in size. This can be accomplished at the time of making the negative in the camera, or the copy can be enlarged from a small negative by using a photographic enlarger.

Color separation can be done by using color filters in the camera lens. Some colors can be dropped out or picked up by using certain types of negatives. For instance, orthochromatic film drops out blue and picks up red, whereas the panchromatic film drops out red and picks up blue. Film is available to make a positive (lines opaque and background transparent)

in the camera, rather than the negative (lines transparent and background opaque). These positives can be used for reproducing dry process contact prints. The proper use of materials and equipment is very important in photography.

Imperfections or dust spots can be opaqued out on the negative. Changes or corrections can be made by retouching. Fine lines can be added to the negative by etching in with an etching needle on the emulsion side of the negative.

PHOTOCOPY PRINTS.—(Photostat, Rectigraph, Dexigraph, and Foto-Copyer) Readable photocopy negative paper prints are made direct from an original with a camera having a prism lens. (An ordinary camera lens makes a negative in reverse or mirror image and the purpose of the prism is to reverse the image so that the copy is readable). If a positive is desired (black lines with white background), it is necessary to re-photocopy the negative copy.

Photocopy prints can be made the same size as original or they can be reduced or enlarged in size. Usually this process is used to make one or a few copies (photostats) of an existing original.

The Dexigraph and Foto-Copyer equipment are designed to reproduce a duplicate copy on card or sheet of an existing card record system or for preparing statements from an existing ledger sheet system.

MICROFILM.—(Recordak, Film-A-Record, and Flofilm) Microfilm is ordinarily considered a filing system; however, its application is expanding into the field of reproduction.

Miniature negative films (reduced approximately 23 to 1), made in rolls (16 or 35 millimeter) are used (1) to copy records or drawings so that the original can be destroyed to conserve space, (2) to make a negative copy of a record as it is removed from a file on loan to other departments so that the original can be reproduced if lost, (3) to make a duplicate set of important records, documents, or drawings which can be filed in another location for safe keeping as a protection against destruction by fire, (4) to make a negative copy of an engineering drawing so that copies of the original can be made in reduced size, or (5) to make miniatures of newspapers, books or periodicals.

The film roll after developing can be placed in a reading projector which enlarges the image on a ground glass so that any copy can be readily located and read. A mirror in the projector permits the photocopy reproduction on an enlarged paper print of any record.

The number of records on a hundred foot roll depends upon the size of the original. Each indexed roll is placed in a box that is indexed and is filed in a vertical file and the complete record is filed in an area of approximately one hundredth the space required for the originals.

Both sides of a record (usually checks) can be reproduced with one feeding of the copy into the machine. The copy is automatically turned over in the machine; however, a new development permits reproducing both sides simultaneously by the use of mirrors.

The microfilming of the mine run of records is usually done by the employees within the company; however, when quality work is required, such as the reproduction of engineering drawings, this work can be contracted for with experienced concerns using special equipment for precision work.

Contact Prints.—A contact print is different from photographs and photocopies insofar as a camera is not required to reproduce the copy and the work does not have to be done in a darkroom. Facsimiles are made by placing the transparent original or tracing and the sensitized paper together (contact) and by exposing to bright light in some type of printer machine or box.

The image can be placed on the transparent paper (vellum) or cloth with pencil, ink or typewriter. Best results are obtained by having a complete opaque image on a complete transparent material. A transparent solution can be applied to the material to make it more transparent. Type-written copy should be backed up with carbon paper in reverse on the under side to improve opacity of the image.

Transparent duplicates can be made by several of the processes. These prints can be corrected or revised and be used as originals for reproducing other prints. Various combinations of processes can be used effectively.

In general, there are two types of contact prints: (1) wet process and (2) dry process.

WET PROCESS.—After exposure, the copy must be developed, washed and dried. A negative print (dark background) is reproduced from a positive original (transparent background) or a position print (white background) is reproduced from a negative original (opaque background).

Note: Photographic, photocopy, or contact print negatives can be used to make readable positive prints.

1. *Blueprint.* (Negative-blue background or positive-blue line) Blueprint equipment is available to make copies on continuous rolls or by cut sheets. The machines using continuous rolls complete the entire process. They expose to arc lights, develop with potash, wash with water and then dry the prints. These operations are handled individually when cut sheets are used.

2. *Van Dyke Print.* (Negative-brown background or positive-brown line) A Van Dyke is very much the same as a blueprint. The equipment and process is the same except that the Van Dyke paper is developed with hypo and the results are dark brown and white rather than blue and white.

3. *Contact Printer*. (Negative-black background or positive-black line. Electro-Copyist, Portagraph, Duophoto, Apeco, Photogram, Portastat, Copy King, and others) This process is similar to the blueprint and Van Dyke process with the exception that cut sheets (one or more at same time) are exposed to light (not arc light) in an inexpensive box printer and the special sensitized paper is developed with hypo and fixer and the results are black and white.

Copies can readily be made from existing copy, such as letters, graphs, charts and advertising, or from transparent originals especially prepared for this process. Prints can be made on one side or both sides of a sheet.

(a) Reproducing copies from an original with image on one side only. When the printed or written image appears only on one side, and the paper is reasonably transparent, the copy is reproduced by light exposure through the original. By placing the original to be copied on the glass face down and putting the sensitized paper on top, emulsion side down, the results reproduce a readable or true image negative print. (If the original is placed on the glass face up the copy would be an unreadable or mirror image negative.)

(b) Reproducing copies from an original with image on both sides. When the printed or written image appears on both sides or for opaque originals on cardboard, wood, metal or fabric, the copy can be reproduced by reflection. By placing the sensitized paper on the glass, emulsion side up, and putting the original on top, image to be copied face down on sensitized paper, the results reproduce an unreadable or mirror image negative.

(c) Reproducing positives from negatives. A readable (true image) positive (black line with white background) can be reproduced from either of the above negatives. (Filter plate is removed when making positives.)

DRY PROCESS.—Positive prints are reproduced directly from transparent originals or tracings (image on one side only) by these dry developing processes. (A positive-white background is made from a positive-transparent original.)

Equipment for reproducing both processes is available to handle sensitized material in either continuous rolls or cut sheets. Reproduction can be made of drawings, typed or written matter from any original on reasonably translucent material (thin paper, vellum, cloth or foils). The sensitized paper and the transparent original are exposed in the printer, and then the sensitized paper is fed through the developing machine and the finished print emerges fully developed, ready for use without washing or drying. Sensitized paper is available for making prints on one side or both sides of the sheet.

Since the backgrounds of these prints are white, written notations or revisions are legible, and prints can be colored with crayon, ink or water colors. Prints are useful in product development work to show alternative details.

Transparent duplicates of the original can be made by these processes which provide a simple method of making corrections, additions and changes without altering or redrawing the original. Corrections on transparent duplicates can be made either by using correction fluid to remove the image or by blocking or masking out the section which is to be revised.

Composite prints can be made from several foil originals by registering the various foils and exposing them together, on a piece of sensitized paper.

1. *Black and White Print.* (Bruning and Dietzgen Directo) This process reproduces a jet black line print on a white background; however, special developing solutions may be obtained for reproduction with red or brown lines. Paper is also available in various shades or tints as a means for distinguishing prints used by different departments or in various stages of process. Prints are developed by moisture of a developing solution.

2. *White Print.* (Ozolid) Sensitized paper is available for reproducing blue, black or maroon lines on a white background by this process. Prints are developed by ammonia fumes. This dry process reproduces a true-to-scale print of the original and the prints do not wrinkle or curl.

Impression Stamps.—Impression stamps are ideal for inserting repetitive data on record forms or reports. There are many variations to meet specific problems.

RUBBER STAMP.—A large variety of stock rubber stamps with words such as "Paid," "Billed," "Delivered," "C.O.D." "Received," and "Canceled" are available for common applications. Metal frame band stamps having twelve commonly used words on one band are convenient where flexibility is required.

Special stamps of any text or form having various styles and sizes of type can be made to order in any size to meet specific problems. A facsimile of the impression is usually indexed on the side of the rubber stamp to facilitate convenient handling and filing on strip or revolving racks.

A set of interchangeable type (alphabet, figures, and other characters) can be used to advantage in the office to compose emergency or temporary impression stamps. The flexibility of this type makes it practical for imprinting sizes, lot numbers, pattern numbers, prices, etc. Type having a metal body and rubber printing surface assures perfect alignment. Holders can be supplied in one, two, three, or four lines.

Self-inking printing wheels or rollers should be used for stamping large printing areas.

Penetrative ink for stamp pads can be had in six colors: black, red, blue, green, violet, and carmine. A special purple hectograph ink can be used for reproducing the rubber stamp impression by the gelatin hectograph

process. (A metal die stamp can be used for reproducing an impression by the spirit hectograph process.)

SIGNATURE STAMP.—Facsimile signature stamps can be conveniently used for approvals when a longhand signature is not required. They can be had in either the ordinary stamp with handle or the self-inking type.

DATE STAMP.—Date stamps are available in a variety of styles, and can be used with stamp pad or they can be of the self-inking type: (1) movable band line daters, (2) movable band line daters with other words or figures, (3) movable band daters combined with special flat rubber stamp, (4) type-set daters (loose type) combined with special flat rubber stamp, and (5) type-set pencil daters (loose type) in which dater slips over end of pencil (either end) and is used in combination of checking and dating. (Pencil daters commonly used by librarians are practical for office work.)

DATE AND TIME STAMP.—Time stamps operating in conjunction with date stamps can be set manually or operated mechanically by clock.

Manually set rubber time stamps, indicating the approximate time, are available in (1) oblong stamps (stamp pad or self-inking types), the time being set by adjusting a sliding arrow or (2) round stamps (stamp pad type) the time being set by turning an outer metal rim.

Mechanically operated time stamps, indicating actual time in hours and minutes, reproduce an impression by stamp pad ink or by ribbon.

NUMBERING.—Metal frame band stamps, having four or more rubber numbering bands with figures of various sizes, are used for imprinting sizes, lot numbers, pattern numbers, etc.

Numbering machines, having four to seven metal numbering wheels with figures of various sizes, are used for consecutive numbering. These self-inking hand numbering machines can be set to number consecutively or repeat to duplicate, triplicate, quadruplicate, etc.

Addressing Machines.—Addressing machines were originated to address envelopes, post cards, shipping labels or tags and other mailing pieces, but their development has expanded into the field of imprinting of a variety of office and shop forms such as pay checks, pay envelopes, payroll register, dividend checks, production orders, production schedules, routing tickets, requisitions, cost records, time tickets, coupons, vouchers, route sheets, premium notices, utility bills, tax bills. They can also be used for inserting the headings on ledgers, statements, time cards, job cards, inventory records, etc.

Machines are available in a variety of sizes and types for basic jobs and built in features and attachments broaden the scope for specific jobs. These features are: (1) automatic selection of signaled frames, (2) automatic feed,

(3) cut-off device—deletes any unwanted data that appears on the plate, (4) automatic listing on sheets or rolls, (5) dater, (6) consecutive and repeat numbering, (7) counter, (8) repeat device—to make duplicates, and (9) signature device.

Automatic form printing machines can be had for combining three operations: (1) printing the form—both front and back; (2) filling in the variable data; and (3) inserting the name and address. These machines convert a roll of blank paper into stacks of completed forms. In addition to the above they punch holes for binding, perforate or score, date, number, and count the forms. This equipment is primarily used by public service corporations for service bills, insurance companies for premium notices and governmental divisions for tax bills.

Various machines are available for publishers. One type prints and addresses the wrapping label in one operation. Another machine imprints the address on the margin of a magazine or quarter-fold newspaper. Another type automatically addresses, folds, and places a sealed band wrapper around newspapers and the sealed papers are delivered to mail sacks at the side of the machine.

There are two types of plates used for reproduction or imprinting on addressing machines: (1) embossed metal plates and (2) typewritten fiber stencil cards.

EMBOSSSED METAL PLATES.—(Addressograph, Speedaddresser, and Speedaumailer) Metal plates of various size are embossed on a Graphotype Embossing Machine (types of various styles and sizes) and the plates are inserted into metal frames. Index cards or posting record cards are also inserted in the frame. Various types of numbered, lettered, or colored metal tabs can be positioned at the top of the frames for classification and automatic selection.

The plate frames are filed in drawers in some indexing order and a complete drawer can be loaded into the magazine of the addressing machine. The frames are automatically brought to printing position, one at a time, and the printing plate mounted on the operating arm of the machine is brought down against the envelope or other matter to be imprinted and the image is reproduced through an inked ribbon of any color. The impression is made by pressure; therefore, several carbon copies can be made at the same time the original is reproduced.

TYPEWRITTEN FIBER STENCIL CARDS.—(Elliott and Cardvertiser) Stencils of an orange-colored tissue, mounted in a cardboard frame, are cut by standard typewriter, electric stenciltyper, or hand stylus. Frames are available in eight colors for indexing or classifying. Holes can be punched, or notches die cut, in the top and bottom of the frame for automatic selection.

Characters cut into the orange tissue are legible and indexing is unnecessary. Large frames are available for a posting record.

These stencil cards are filed in drawers in some indexing order and a complete drawer can be loaded into the magazine of the addressing machine. The stencil cards are automatically brought to printing position, one at a time, and the flat rubber printing pad contacts the stencil and forces the ink through the cut stencil to imprint the image.

Special frames are available for tabulating statistics simultaneously with addressing. This frame has an area which allows for a maximum of 105 holes, and holes are electrically punched to indicate specific data according to a developed code. As the stencil frames pass through the machine, the name and address are imprinted and the statistics portrayed by the pre-punched holes in the frame are tabulated in individual counters for each code.

The Cardvertiser is a machine that prints and addresses post-cards. Large stencils (post-card size) can be cut by typewriter or hand stylus for reproducing the advertising illustration and message on one side of the post-card and regular fiber stencil cards are used for imprinting the name and address on the reverse side.

CHAPTER 20

RECORDING SYSTEMS AND RECEPTION PROCEDURES

Payroll Systems

Factors to Be Considered in Developing a Payroll System.—Inasmuch as wages and salaries represent a considerable portion of the productive cost in industry, there is reason for the installation of an adequate system for recording payments to employees. The prime purpose of any payroll system is to accurately record the time of the workers and pay them the amount due; to distribute their time to appropriate accounts and from such records prepare data necessary for the control of labor costs.

There are five major basic phases to be considered in a payroll system:

1. Type of system
2. Payroll records and authorization forms
3. Preparation of the payroll
4. Disbursing and distribution
5. Payroll reports

Type of System.—The type of payroll system to be used will depend upon consideration of the following:

1. Method of compensation to be paid. (Fixed salary—wages on an hourly basis—piece work or an incentive plan or various combinations of these.
2. The number of employees carried on the roll. (This may determine whether the system will be hand-posted or mechanized.)
3. Payment to be made in cash or by check. (Distance from a bank and the desires of a union, if any, might be a determining factor.)
4. Length of pay period. (Weekly—bi-weekly—semi-monthly, or monthly.)

There are, of course, many factors peculiar to the particular type of business, in addition to those mentioned above, which must be considered.

Payroll Records.—The payroll records should comprise:

1. Records of original entry. Time sheets (Figure 134)—job tickets and time clock cards—job cards or production sheets—price rate sheets, etc.

WEEKLY ATTENDANCE RECORD

Entries on the reverse side of this card must be made **DAILY** in ink by all employees subject to overtime, regardless of hours worked. This form will cover weekly periods shown in the table. One card for each pay period. Completed cards will cover a period of two weeks except four times per year when three weeks will be included.

Sign in space provided and turn in card to your supervisor for approval **EACH MONDAY MORNING**. If the period to be covered according to the table is incomplete, your supervisor will return the card for your entries for the following week. *Your attendance record must be signed and approved weekly.*

When no hours are worked, indicate the absence for the hours not worked by the following symbols:

E—Excused Absence
S—Illness

V—Vacation
H—Holiday

L—Leave of Absence

Completed cards will include the periods of:	Overtime compensation will be included in salary pay check for period ending:	Completed cards will include the periods of:	Overtime compensation will be included in salary pay check for period ending:
Dec. 31—Jan. 6 Jan. 7—13	1946 Jan. 31	Jul. 1—7 8—14	Jul. 31
Jan. 14—20 21—27	Feb. 15	Jul. 15—21 22—28	Aug. 15
Jan. 28—Feb. 3 Feb. 4—10	Feb. 28	Jul. 29—Aug. 4 Aug. 5—11	Aug. 31
Feb. 11—17 18—24 25—Mar. 3	Mar. 15	Aug. 12—18 19—25 26—Sep. 1	Sep. 15
Mar. 4—10 11—17	Mar. 31	Sep. 2—8 9—15	Sep. 30
Mar. 18—24 25—31	Apr. 15	Sep. 16—22 23—29	Oct. 15
Apr. 1—7 8—14	Apr. 30	Sep. 30—Oct. 6 Oct. 7—13	Oct. 31
Apr. 15—21 22—28	May 15	Oct. 14—20 21—27 28—Nov. 3	Nov. 15
Apr. 29—May 5 May 6—12	May 31	Nov. 4—10 11—17	Nov. 30
May 13—19 20—26 27—Jun. 2	Jun. 15	Nov. 18—24 25—Dec. 1	Dec. 15
Jun. 3—9 10—16	Jun. 30	Dec. 2—8 9—15	Dec. 31
Jun. 17—23 24—30	Jul. 15	Dec. 16—22 23—29	Jan. 15, 1947

DO NOT FOLD THIS CARD

Figure 134a. Weekly Attendance Record

Week Ending _____		MORNING		AFTERNOON		NIGHT		TOTAL	
DAY	START	QUIT	START	QUIT	START	QUIT	HOURS	MIN.	
MON.									
TUE.									
WED.									
THU.									
FRI.									
SAT.									
SUN.									
The undersigned employee and Dept. Supervisor certify that this record is correct: Employee's Signature _____ Supervisor's Signature _____								TOTAL HOURS WORKED	

DEPT.

Week Ending _____		MORNING		AFTERNOON		NIGHT		TOTAL	
DAY	START	QUIT	START	QUIT	START	QUIT	HOURS	MIN.	
MON.									
TUE.									
WED.									
THU.									
FRI.									
SAT.									
SUN.									
The undersigned employee and Dept. Supervisor certify that this record is correct: Employee's Signature _____ Supervisor's Signature _____								TOTAL HOURS WORKED	

NAME

Week Ending _____		MORNING		AFTERNOON		NIGHT		TOTAL	
DAY	START	QUIT	START	QUIT	START	QUIT	HOURS	MIN.	
MON.									
TUE.									
WED.									
THU.									
FRI.									
SAT.									
SUN.									
The undersigned employee and Dept. Supervisor certify that this record is correct: Employee's Signature _____ Supervisor's Signature _____								TOTAL HOURS WORKED	
OVER-TIME							GRAND TOTAL		

Figure 134b. Weekly Attendance Record (reverse)

2. Summary records.
3. Individual earnings records to accumulate the earnings of each employee, together with various payroll deductions. These are necessary for the preparation of various tax reports. (Figure 135.)
4. Disbursement records.

These forms should be designed to meet the need of the particular industry. The payroll system should be so designed that the payroll division will receive proper authorization and approvals relating to additions, dismissals, absences, rate changes, transfers, etc.

The records should be designated so that federal, state, and local reports as required by law, such as withholding taxes, social security contributions, workmen's compensation, etc., may be readily prepared.

The distribution of charges to the proper accounts is an important function of the payroll system and proper forms should be provided.

The forms of authorization required by the payroll division are:

1. Employment
2. Rates to be paid
3. Transfer
4. Termination

There should be little deviation from this requirement, as it provides a check on the payroll division and may prevent possible payroll defalcations. A single form may be provided embodying all the above elements, but a separate form for each type of authorization is sometimes preferable. Varied colors for forms often aid in designating the immediate use of the form.

Preparation of Payroll.—In preparing the payroll, the data is taken from records of original entry, such as time sheets, foremen's reports, clock cards, etc., onto what are generally known as Payroll Sheets. Such sheets should give in some form the following information:

1. Period covered
2. Date of payment
3. Employee name, number, and occupation
4. Social security number
5. Hours worked (regular and overtime)
6. Rate of pay
7. Gross earnings
8. Deductions
9. Net pay

Provision may also be made directly on the payroll sheet for distribution to various accounts if they are not extensive, otherwise a separate "Payroll Distribution Sheet" should be designed to accommodate the various depart-

mental and account classifications. Method of assembling the above information depends upon size of the force to be paid, and whether it is done manually or by machines. By manual methods usually three separate operations are performed in completing the basic payroll records.

1. A handwritten or typed payroll sheet is prepared and balanced.
2. An individual posting is made to each employee's cumulative earnings record.
3. The pay check or cash envelope is prepared, to which is attached a detail of all deductions.

The use of bookkeeping machines makes possible the performance in one step of the three operations just enumerated. In addition, it provides automatic balancing features lacking in the manual method. Where a sufficient volume of work justifies the purchase of machines, obviously the per man cost of preparing payroll records is greatly reduced.

Payroll Verification.—Some form of verification is an important element of most payroll procedures as a means of guarding against dishonesty and inaccuracy in payroll disbursements and payroll accounting. Not infrequently, however, the necessity for this operation has been overlooked. Various methods of verification are employed.

SAFEGUARDS AGAINST DISHONESTY.—From the standpoint of dishonesty the principal requirement is to make certain (1) that only the names of legitimate employees are carried on the payroll and (2) that employees are paid only the amounts actually due them. Proper safeguards on these points are largely a timekeeping function. There is usually some provision for foremen, production clerks, or time checkers to review individual time and production records for the purpose of detecting irregularities or errors. Frequently foremen are required to certify to the accuracy of the service reported. Sometimes spot checks of attendance by independent checkers are employed and individual time or production sheets are usually compared with clock cards.

From the standpoint of the accounting routine, special precautions are generally taken regarding the custody of the official list of names for the payroll. In many companies names are added to or removed from this list only on the signed authority of a responsible executive. Chain store organizations have a special problem in this connection because of the geographical distribution of the units and the small number of employees at each location. Frequently it is necessary to delegate broad authority to the local store manager in the matter of hiring and firing. Under such circumstances, some companies require that both the manager and his clerical assistant certify to the accuracy of the payroll and frequently the number and identity

of employees is verified at intervals by the district supervisor or traveling auditor.

SAFEGUARDS AGAINST INACCURACY.—For purposes of detecting errors and inaccuracies in the payroll records, one or more of the following methods were found in use by the companies surveyed:

1. Proof against a predetermined total
2. Recheck of entries, extensions, and additions
3. Detailed inspection of the completed payroll for the purpose of spotting individual errors

For purposes of localizing errors it is common practice to use a separate proof for each department or other natural division of the payroll. This procedure adds little to the verification routine, and eliminates extensive rechecks in the event an error is found.

Use of predetermined totals: The predetermined totals used for proving a payroll are computed by adjusting either the preceding payroll total by the total amount of current changes or by independent summaries of the data from which the entries are made, such as time and production records and deduction schedules.

The first method of deriving a predetermined total is used mostly for salaried payrolls where fluctuations in the rate of pay are infrequent. The procedure followed is to add to the departmental payroll total of the previous period:

1. The pay due new employees appointed during the period
2. The pay of those transferred in from other departments
3. The amount of salary increases

and to deduct:

1. The pay of employees discontinued during the period
2. The pay of those transferred to other departments
3. The amount of salary reductions

The resultant total is the predetermined payroll for the current period.

The second method of establishing a predetermined payroll total is especially applicable to the payrolls of wage earners where earnings fluctuate from week to week. This method consists merely of running off a total of each group of records from which the payroll entries are made after they have been arranged by departments or other payroll divisions for posting purposes. These records are represented by time cards or sheets or production sheets or tickets on which the earnings have been computed and by schedules of the various types of deductions to be made. By subtracting the sum of the deductions from the gross pay, as represented by the sum

of the time or production records, the predetermined net pay for the department is secured. This departmental proof is sometimes summarized on a columnar form showing:

1. Department
2. Gross pay
3. Deductions (itemized)
4. Total deductions
5. Net pay

The methods of cross footings and rechecking are widely used for payroll verification purposes. The rechecking method involves either a review by a second clerk of all payroll entries and computations, or the comparison of two sets of figures computed independently. The first method is usually considered adequate only if used in addition to other means of verification. Duplicate computations are used primarily in checking payroll extensions. Where employees are paid at a varying time or piece rate, extensions are made by one clerk on the time or production records and by another on the payroll sheet itself or on a supplementary assembly sheet. The departmental totals so secured should agree.

Proof by cross footings applies primarily to:

1. The verification of payroll deduction adjustments
2. Proof of payroll totals against a labor cost analysis

In the first instance, the total of the gross pay column, less the sum of the totals of the deduction columns, should equal the total shown for net pay due employees. In the second place, the payroll total is reconciled with a labor cost distribution such as shown in Figure 135. The total of the distribution columns shown on the right side of this form should equal the total column for wages. Since cost distributions often are not completed within the payroll period this proof is usually considered more important for accounting than payroll purposes.

The inspection method of verification is used to some extent by most payroll department executives. It consists of a detailed scrutiny or visual audit of the completed payroll sheets for spotting entries that are apparently out of line. The payroll executive's familiarity with the figures and knowledge of rates, hours, and net pay for various occupations often enables him to detect such items.

Payment of the Payroll.—The prevention of fraud is a factor to be considered in preparing and paying the payroll. It is advisable to have payment to the employees made by persons other than those preparing the roll.

It may be advisable in some instances to have a cash payroll disbursed by an Armored Car Agency. The agency receives a check for the net amount

of the payroll and the pay envelopes indicating the employee name, number and amount due. The envelopes are filled and on pay day they are distributed to the employees by the agency in conjunction with a company representative.

Payment by check may require more work than payment by cash after the payroll has been prepared for disbursement. A check for each employee must be written, protected and signed. There is also the necessity of handling the cancelled checks in reconciling the bank account.

Improved payroll writing machines have done much to offset this additional work and should be considered before deciding whether payment is to be made by check or cash. A separate payroll bank account should be established when disbursement is made by check.

ACCOUNTING DISTRIBUTION.—In determining the method to be used in distributing the payroll, consideration must be given to the number of payroll cards and the volume of detailed cost accounts. Where the volume is large some mechanical method should be adopted, such as tabulating punch card or key sort. This is particularly so in a large departmentalized plant where there are many cost centers. An employee may work on a number of operations and his wages must be allocated accordingly. The method of payment for work performed varies quite often within the plant; straight time or day work, piece work, and incentive or premium are the three major classifications.

Distribution of time for day work may be made from the individual time card showing hours worked per day chargeable to a particular department.

The piece-work basis requires an accounting for payment to the worker at an agreed amount for each measured unit of work. The employee is paid for the amount of work done rather than for hours worked with a certain minimum or base pay. Distribution to the various cost accounts for piece work requires a form of job ticket designed to fit the different operations. A separate ticket for each employee's time on one particular operation is used showing the volume of work completed. In a large plant where piece work is performed in great volume, some type of mechanical sorting of these job tickets such as tabulating punch cards or key sort or bookkeeping machine is advisable.

Payroll Reports.—A well-designed payroll system should provide for monthly reports to management. The type of report will depend on the size and complexity of the organization but should include the number of employees and the total amount paid for the period, summarized by departments, divisions and locations; comparisons with previous periods showing increases or decreases in number of employees and amounts paid.

To demonstrate the foregoing points in connection with payroll systems a practical illustration is reproduced on the following pages.

FINANCIAL INSTITUTION.—This company handles a large clerical payroll by use of the tabulating machine method. The majority of the employees receive a fixed weekly salary and, in addition, a variable monthly bonus or extra compensation. A limited number of employees are paid on a piece-work basis.

The principal payroll records in use are:

1. The master salary card
2. Tabulating machine punch cards
3. Payroll sheets.

A control sheet is also prepared for each department or section covering each payroll period for purposes of verification and journal entry.

In addition, a number of records of original entry are kept, which are the basis for payroll changes. These are:

1. Appointment form, covering new employees
2. Discontinuance recommendation, covering separations
3. Transfer notices
4. Salary change form
5. Vacation notification
6. Deduction authorization

The last of these forms is signed by the employee.

A master salary card (Figure 136) is prepared for each employee. It provides space for recording a year's salary data. Various kinds of summary data are shown in the top section, including the employee's normal weekly salary and the detailed normal or regular deductions. Space is provided for revisions in these rates. The principle is followed of entering only irregular data or exceptions in the weekly section of the master salary card. In other words, there would be no entries on the body of this card, if there were no changes during the year, as regards earnings, attendance, or deductions.

A punch card is prepared for each employee, showing the data entered on the master salary card. This includes:

1. Identification of employee
2. Normal salary
3. Normal deductions
4. Normal net pay

These cards are prepared from the master salary card. They are filed alphabetically by sex according to sections or departments, and remain in this sequence so long as there is no change in normal salary or normal deductions. If employment is discontinued, the affected card is removed. If an employee is transferred to another section, the card is likewise trans-

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Figure 136. Remuneration Record

ferred in the file. If there are changes in either normal pay or normal deductions, a corrected punch card is filed and the old card destroyed. These cards are run through the tabulating machine each week, and form the basis for the weekly payroll.

The weekly payroll (Figure 137) is prepared on the tabulating machine, and is a run sheet of the punch cards. The tabulating machine prints:

1. Normal salary
2. Normal deductions
3. Normal net payment on the payroll sheets

but does not insert adjustments or actual net payment. As a rule, there are relatively few entries in the latter columns. The actual net payment is the same as the normal net payment, unless irregular adjustments are necessary. Such adjustments are entered by hand, wherever they occur, and the actual net payment is extended by hand.

The payroll is proved by individual sections or departments. The "normal salary" of each section, as shown on the payroll, is verified with a predetermined total, which is prepared as follows:

DETAILS OF NORMAL DEDUCTIONS										DETAILS OF TAX REPORT									
										Single	Salary			Brought Forward					
										Married	Extra Comp.			Less Sal. Ded.					
											Overtime			Total Earnings Federal					
										State of Non-Res.	Add'l Comp.			Less Earnings Outside N. Y. State					
											Mess. Service			Salary					
										Resident	Comm. 1st Yr			Commission					
										Exemption	Comm. Ren.								
										\$	Forward			Total Earnings N. Y. State					
										COMMISSION			BENEFITS			No.			
Vacation Advance	Appt. or Inc Prior Week	Extra Comp.	Overtime Mess. Ser. Add'l Comp			1st Year	N. Y. or Out	Renewal					Amount	Prema.	From (Date)	Wks.			
																0			
																1			
																2			
																3			
																4			
																5			
																6			

of a Financial Institution

1. Previous week's normal payroll
2. Additions:
 - Appointments of new employees during week
 - Transfers in (from other sections)
 - Salary increases
3. Total
4. Deductions:
 - Resignations or discharges during week
 - Transfers out (to other sections)
 - Salary reductions
5. Total new normal payroll

These predetermined totals represent the aggregate normal net payment of the respective sections, and are used as a basis for verifying the "normal salary" column of the payroll sheets.

The following adjustments are made in the predetermined normal payroll, in order to arrive at a proof of "actual net payments":

DEPT. _____		PAYROLL											
SEC. _____		WEEK ENDED _____											
Line	NAME OF EMPLOYEE	SECTION	EMPLOYEE INSURANCE NO.	NORMAL SALARY	ADJUSTMENTS		REIMBURSEMENT OTHER THAN CASH	TAXABLE EARNINGS	NORMAL DEDUCTIONS	ACTUAL NET PAYMENT	NORMAL NET PAYMENT		
					Additions \$	Deductions \$							
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Figure 137. Payroll Sheet of a Financial Institution

1. *Total new normal payroll*
2. *Additions:*
 - Retroactive increases
 - Extra compensation or bonuses
 - Gratuities
 - Piece work
 - Salary refunds
 - Vacation advances
 - Overtime
 - Salary advances
3. *Total (includes normal payroll)*
4. *Deductions:*
 - Absences
 - Vacation advance
 - Salary advance
5. *Total*
6. *Net charge to payroll account*—Item (3) minus item (5)
7. *Additional deductions:*
 - Group insurance
 - Pensions
 - Salary allotment insurance
 - State income tax withheld at source
8. *Total additional deductions*
9. *Net amount payable*—Item (6) minus item (8)

Accounts Payable Systems

The recording and accounting for purchased materials or services and proper payment therefor is the fundamental principle of all accounts payable systems. As a part of the establishment of a procedure to accomplish effective control, consideration must be given to the functions of purchasing, receiving and paying.

The Purchasing Function.—Written requests (requisitions) for the purchase of materials or services should be required before an order is placed. A properly approved requisition is a formal request and authorization to the purchasing department to procure materials or services as specified. The form may be of simple design and is usually prepared in duplicate. The original is forwarded to the purchasing department and the duplicate is retained by the requisitioner. Basic information to be supplied by the requisitioner includes the following:

1. Date
2. Description of materials or services

3. Quantity desired
4. Date required
5. Purpose
6. Signature of requisitioner

Provision should be made on the form for additional information to be supplied by the purchasing department as follows:

1. Name and address of vendor
2. Terms of purchase including delivery date
3. Routing desired
4. Price
5. Purchase order number
6. Signature of purchasing agent

In addition to the above information, many firms desire the account to be charged and approval signature to be shown on the requisition.

A purchase order must be prepared in as many copies as may be required. The order should be typewritten and contain all the information shown on the approved requisition. The original and the acknowledgment copy of the order bearing the signature of the purchasing agent are mailed to the vendor and become a binding contract if accepted by him to supply material or services for which payment will be made in accordance with terms of the contract.

In many business concerns materials and services are procured on a contract or other basis and are not covered by specific purchase orders. Such transactions, however, must still receive accounts payable treatment.

The Receiving Function.—On the arrival of purchased materials a receiving report is prepared by the receiving section on which is recorded the following:

1. Name and address of shipper
2. Date received
3. Routing and charges
4. Type material
5. Quantity received
6. Signature of receiver

Receiving reports should be prepared in no less than two copies. The original is forwarded to the purchasing department and the duplicate retained by the receiver, or used for posting inventory control records. The receipt of other goods and services must be confirmed in appropriate manner.

The Paying Function.—Vendors' invoices are routed to the purchasing department, or the individual responsible for originating the transaction,

for approval from a purchasing department standpoint. A rubber stamp should be provided for approval signature, the imprint of which is placed on the face of each invoice. A careful check should be made against a copy of the purchase order and, possibly, the receiving report, to ascertain the correctness of quantity and type material received and invoiced as well as the unit charge made. In many cases all or part of this audit function is performed by the accounting division. The invoice, to which has been attached the receiving report, is forwarded to the accounting division where a verification will be made of extensions and the account to be charged will be assigned.

Great differences in procedure may arise at this point due entirely to individual requirements. This discussion will be confined, therefore, to strict adherence to basic requirements for effective control. Receipt of the invoice becomes a liability and provision must be made for immediate approval and recording of the invoice with plans for immediate or deferred payment as may be stated by terms of purchase.

Recording in the purchase journal or voucher register, as the case may be, is made by showing a reference number, vendor's name and the amount of the invoice. Proper account distribution of invoice amounts forms a part of control of accounts payable. Invoices are then filed in appropriate manner to assure payment within the discount period.

Most firms make provision with vendors for payment of invoices on a monthly or other period basis. This simplifies procedure considerably. However, invoices may be received from any source which must be paid within a ten-day period, thus prohibiting the maintenance of ironclad procedure.

When invoices become due and payable, a check is prepared and mailed to vendor completing the contract. The checks must then be recorded in the cash book or check register showing a reference number, vendor's name, amount of invoice, discount taken and amount of check with proper charges to the accounts payable and cash accounts. This operation is also essential in balance sheet preparation because it directly affects the cash and accounts payable controls.

Many variations can be found in accounts payable procedure, yet every plan must abide by these basic requirements to provide effective and accurate control records. Briefly summarized, the following seven definite steps constitute the basic requirements of an accounts payable system:

1. Requisition
2. Purchase order
3. Receiving report
4. Approval of vendor's invoice
5. Recording in purchase journal or on voucher

6. Issuance of check
7. Recording in cash book or voucher register

In every step of this procedure full cognizance of the fact that the firm's money is involved should be uppermost in the performance of each task. Frequently in small companies one individual performs every step in this procedure. For effective control it is imperative that steps be divided,

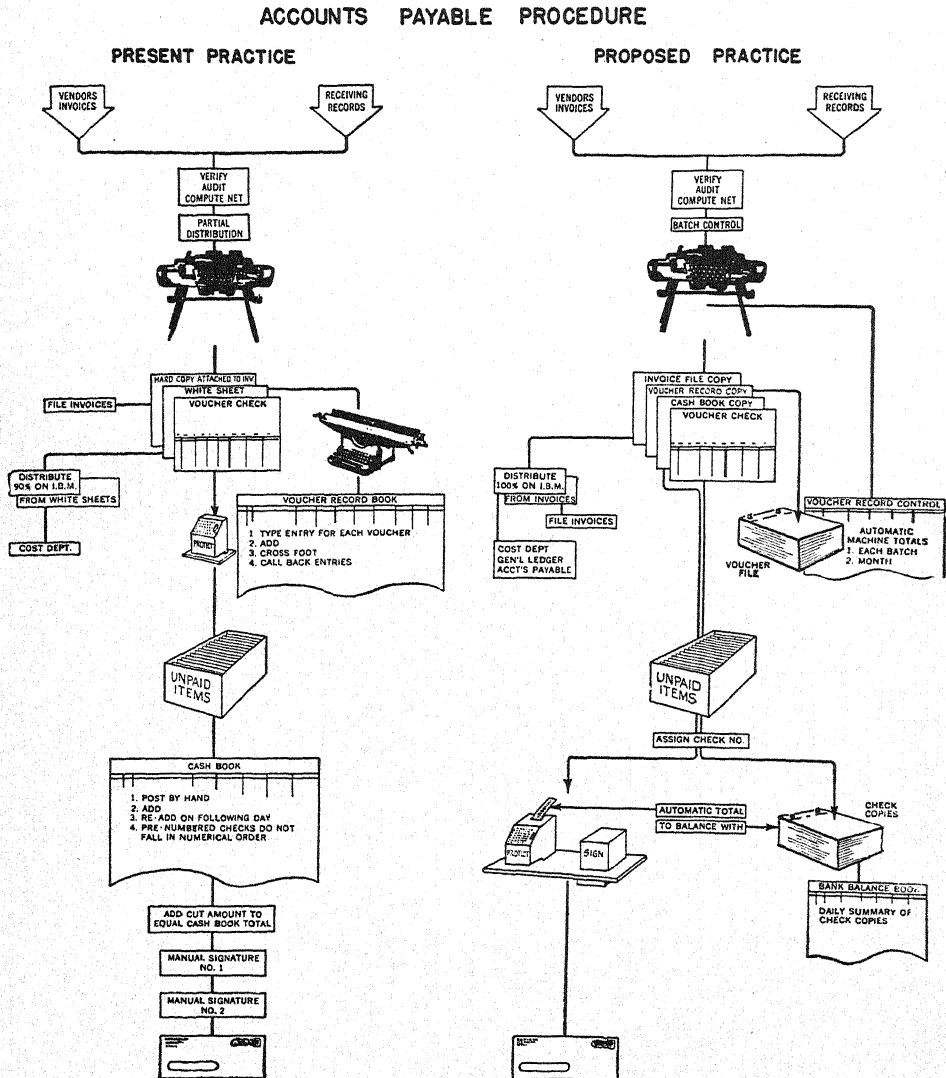


Figure 138. Accounts Payable Procedure

thereby creating an opportunity for an internal audit of each transaction. Figure 138 illustrates a simplified accounts payable procedure which provides for this internal audit.

Accounts Receivable

The Sale.—The objective of a business enterprise is the sale of its products or services at a profit. Sales are made for cash, as, principally, in the retail store, or for credit, as, generally, in all other enterprises. When goods are sold and delivered on credit, the amount of the sale is charged and debited on the books of the seller to the customer. Such entries become the basis of the accounts receivable records. There are other types of transactions for which accounts receivable records must be maintained. These may arise out of contracts or other forms of agreement and may not involve a customer's order or invoice. What the cash register is to the retail merchant the accounts receivable records are to the business man who sells on credit.

Accounts Receivable and the General Accounting Records.—On the financial statement, which is a summary of all accounting records, the accounts receivable item is second in importance and liquidity only to the cash accounts. The office manager's primary concern is with the subsidiary accounts receivable records, i.e., the accounts of the individual customers, to which are charged or debited each sale on credit and to which, conversely, are credited the payments made by that customer. The sum total of all balances in all the individual accounts makes up the balance shown in the control "accounts receivable" account as recorded in the general ledger.

The Order.—Business starts with the sale and the sale starts with the order. It is a general rule that the customer submits his order on his own form. The exception to that rule occurs when the salesman writes up the order on a form prepared by the seller and obtains the customer's signature to legalize the transaction. (In such cases, the use of a hectograph pencil and a specially prepared order form permits mechanical reproduction of as many working copies as are needed, eliminating the need for transcription.)

For his own internal procedure, the seller has the choice of using his customer's order form or transcribing the order onto his own form. (In the case of the small order, which does not justify the expense and time involved in transcription, use of the customer's form is desirable and advisable. However, an established policy of a minimum charge which covers order, billing, and bookkeeping cost permits handling all orders, small and large, similarly.)

Some disadvantages of the use of the customer's form are:

1. Orders come in all shapes, sizes and colors.
2. They are often illegible.

3. They usually require interpretation and such interpretation should be made in the office.
4. If the order should be lost somewhere in the plant and there is no copy available, control and follow-up becomes very difficult.
5. Copies, simultaneously needed for several purposes, are not available.

TRANSCRIBING THE ORDER.—The seller's order form may vary from the simple, single shipping order to the complex manifold manufacturing order, or, if practicable, the now generally popular order-invoice form may be used.

The order or order-invoice may be transcribed by hand, on the typewriter, the electric typewriter, the billing machine or by duplicating equipment.

The manifold forms may be collated and padded, snap-out, continuous interleaved or interfolded, or fanfold.

The means of duplicating may be standard carbon, one-time carbon, floating carbon, or hectograph.

THE ORDER-INVOICE FORM.—The purpose of the order-invoice set, as in any combination of forms, is to combine as many key operations as possible to be written at one time.

It is ideal for use by companies who manufacture for and ship from stock, where back orders are infrequent and small. It is impractical for use by companies who manufacture to order, who make many shipments against a single order or who frequently have occasion to back order.

The minimum requirements of the order-invoice set is 6 parts and should consist of:

1. The original invoice (for the customer)
2. The accounting or bookkeeping copy
3. The salesman's copy
4. The shipping section's copy
5. The packing slip (with shipping label sometimes incorporated)
6. Customer's acknowledgment of order

The particular needs of a company determine the variations from that basic set and in some cases as many as 20 to 30 copies of an order are prepared for external and internal use.

The Invoice.—Every order-billing system must provide for means of a signal to the billing section that shipment is being made and that billing is to be accomplished. Generally one copy of the set which has gone out to the shipping section is returned to the billing section with all pertinent data recorded on it. This copy acts as notification of shipment.

PREPARATION OF THE INVOICE.—To the pertinent data recorded on this copy by the shipping section, the billing section adds prices and, if billing

is not done on a billing machine, extensions. Preparation of the invoice set is now actually a matter of transcription and, in the case of the order-invoice form, means merely the addition to the set of such information as was not transcribed originally.

The mechanics of billing parallels the methods listed for transcribing the order. The billing machine eliminates the need for precalculating and the adding registers on the machine accumulate such totals and other data as are required.

THE BACK ORDER.—At times, back orders cannot be avoided and generally the simplest method is to treat that portion of the order as a new order, starting the procedure all over again. It is often important that such orders be identifiable and so the addition of the letters "B.O." to the new order number is recommended.

The Accounts Receivable Records.—A copy of the original invoice constitutes the simplest record of the charge and indebtedness, the account receivable. Single sale transactions and repetitive, identical sales lend themselves to use of this method. Paid invoices are marked accordingly and segregated from the unpaid. This method does not provide a chronological record of charges, the balance due, payments made, and total sales figures for the period.

LEDGER ACCOUNTS.—These may be a bound book, looseleaf ledger, or in the form of ledger cards.

The bound book, always, and the ledger sheets, usually, are limited to handwriting.

The ledger cards may be hand-posted, typed, or posted on a bookkeeping machine. Use of the ledger card permits several combinations of record preparation. The monthly statement of account, when required, can be prepared simultaneously. Copies of that statement (for credit and sales use) can be made at the same writing. The sales distribution journal is also prepared at the time of posting. Ledger cards allow sufficient flexibility to fit them into many types of visible records.

In addition to records of billings (charges, debits) postings to the accounts receivable records are made from credit vouchers, allowance vouchers, cash receipts (payments), and journal vouchers.

DIVISION OF LABOR.—The accounts receivable records are the responsibility of the accounting division of an office. In the preparation and maintenance of these records the accounting division serves simultaneously the comptroller's office, the sales department and the credit department—all of which need and use the information and data recorded. Order transcription and billing are sometimes combined operations of one order-billing

section but often, where justified by volume, the functions are separated and organized independently.

Reception Service

Importance of the Receptionist.—The manner in which a visitor to a business office is first received may bear importantly upon his first and possibly his lasting impressions of the company. It is urgent that his reception be pleasant and courteous and that he be given prompt service and accurate information. An efficient and courteous reception service not only improves public and customer relations for the company but it also speeds the transaction of its business and prevents the unnecessary and undesirable loss of time by its executives and workers.

In those concerns whose offices are adjacent to their factories, added importance may attach to the reception service. It may be necessary for the receptionist to decide if the visitor is entitled to enter the plant or if his credentials as a company or government representative are acceptable.

Duties of the Receptionist.—In most concerns the primary duty of the receptionist is to receive, direct, and handle callers. Dependent upon the size of the business and the number of visitors, the receptionist may be assigned one or more of various other duties. In one concern such duties as addressing envelopes, handling telegrams, cables, and certain other types of communications are assigned. In another (a small concern) the receptionist also handles the switchboard. In still another, the receptionist records in and out time for all employees, does typing, serves as telephone switchboard operator relief, handles telegrams and cables, registered and special delivery incoming mail, and does some typing work. In this concern, the receptionist also looks after packages both incoming and outgoing (to or from the executive offices) and sees to it that each applicant for a position fills out an application blank before he or she is called for an interview. It is frequently a responsibility of the receptionist to see that the reception room is in proper order and clean, although he or she does not perform the janitorial work. In some concerns, a log of the day's callers, the weather conditions, and other minor details of interest is maintained at the reception desk. In still other companies, no such log is maintained, but a complete list of all visitors, together with names of their companies, time of their calls, purpose of the visit, and names of persons called for is kept. In some cases, a separate list of salesman callers is kept and a copy sent to the purchasing department at the end of the day.

Qualifications of the Receptionist.—The importance of the reception service suggests special care in choosing applicants for this position. There is usually little needed of the applicant in the way of technical skill or even

knowledge of business. The chief requirements lie in the field of personality, appearance, and education.

In a survey of "Duties and Qualifications of a Reception Clerk" made by the Policyholders Service Bureau of the Metropolitan Life Insurance Company of New York, the following list of qualifications indicates the range of the traits desired in the receptionist by the fourteen companies participating in the survey.

The qualities desired, listed according to the frequency with which they were mentioned by these companies, follow:

1. Pleasing personality
2. Good appearance
3. Tact
4. Good educational background
5. Poise
6. Conservative dress
7. Businesslike attitude
8. Common sense
9. Resourcefulness
10. Dignity
11. Reserve
12. Discrimination
13. Better than average intelligence
14. Cordiality
15. Patience
16. Quiet voice
17. Refinement
18. Even disposition
19. Natural conversationalist

As to experience, opinion was fairly evenly distributed between those who prefer the applicant to have had previous experience as a reception clerk, those who prefer previous experience in other parts of the company, and those who feel that previous experience is unnecessary. Only one company expressed an opinion in regard to age, stating that no age limits were placed on the job.

The qualifications desired by individual firms perhaps give a more concrete picture of the type of person desired for the job.

The manager of office production in a manufacturing company wrote:

The information clerk, as we see it, should be one who makes a good impression upon the large majority of those who call at our office. She must have a pleasing appearance, dress neatly, be pleasant but businesslike. She must be a person who likes to meet people; she must be interested in seeing that callers are taken care of promptly and that they are served and at the same time seeing

that the company is not imposed upon or the individuals who work for it. If the young lady has these qualifications, of course, she should be a good typist, have good judgment about doing fill-in work which may be assigned to her to keep her busy when callers are not present or requiring her attention. It is unnecessary to say that the young lady in this position of information clerk must be reserved and know how to handle men who may have a tendency to be fresh.

The office manager of another manufacturing concern gave the following information:

It requires a very superior type of girl to handle a position of this kind. Qualifications: possess natural refinement; quiet voice with clear enunciation; a ready smile; even disposition; conservative as to clothes, hairdress, etc. (no lip rouge or highly painted nails—no perfumery); person of extreme tact and diplomacy; good education.

We are most fortunate in having been able to secure the services of a young woman possessing all the qualifications we deem essential for a person in this position. Her greeting of visitors is kindly but not effusive. We are very often congratulated by visitors upon our good fortune in having so courteous a person.

Although this list of qualifications may appear to contain more than the requirements usually believed necessary, the importance of the work fully justifies a strict adherence to them.

Training the Reception Clerk.—It was pointed out in the preceding paragraph that as a rule, the receptionist was not required to possess technical qualifications. This means that in general very little formal training is required by applicants for reception service work. Since it is of great importance that the receptionist know the names, types of work, responsibilities and locations of executives and be familiar with departmental functions it is necessary that instruction be given in these matters. This can usually be accomplished through the use of organization charts and write-ups, manuals, departmental visits and conferences with executives. It is well to supplement this training with a set of standard instructions governing the work of the receptionist or information clerk. The Policyholders Bureau survey, previously referred to, contains the following illustration of such a set of instructions which were given to the receptionist in a manufacturing concern.

INFORMATION DESK ROUTINE OF A MANUFACTURING COMPANY— STANDARD INSTRUCTIONS

The information desk is the first contact and sometimes the only contact that the outsider has with the company, therefore it is essential that our visitors receive careful consideration. If some department appears to be careless in the length of time they require visitors to wait, this should be reported to your superior.

SECURING NECESSARY INFORMATION FROM CALLERS

1. Visitors wishing to contact individuals, regardless of purpose, should give their name, company represented and the nature of their business (if not clear on the business card) before being announced, by telephone.

As a rule when asked, "What company do you represent?" the caller will give it, or he will state the nature of his business, or he will say, "I am a personal friend," or "I am calling on personal business." Should he tell you the latter, say: "Then Mr. A knows you?" (Many who say they are calling on personal business are not even known to the person whom they wish to see.) Should he then admit that he is not known to the man he wishes to see, ask him if he can give you the nature of the personal business and if not, then ask him if someone has sent or recommended him.

If the caller gives a reason or indicates that he has been recommended by someone to see the person upon whom he is calling, then announce him. When he refuses to give any information, tell him: "I cannot announce you unless I may give Mr. A some information on what you wish to see him about."

Should the caller still refuse, telephone the secretary of Mr. A, telling the facts. Act on the secretary's suggestion.

2. Farmers and dealers, as a rule, do not know whom to see. They will tell you, however, what they want. Announce them to the proper person.

3. Visitors calling on members of the Traffic Department are not announced. You should study the faces of those who call upon the Traffic Department so that you will remember those who may be traffic solicitors and who are to be passed on to the Traffic Department without the regular announcement.

4. Ask for the name and company connection of all men calling on anyone in the Engineering Department. Because of the arrangements made for announcement of visitors to the Engineering Department on the Engineering Floor, you may send such visitors to the Engineering Department after you have listed the caller's name and his company connection.

5. Insurance agents, book and magazine salesmen have often given trouble by slipping into the office and calling on people without being announced. If anyone calls this to your attention or you see a person attempting to pass into the office, please report immediately to your superior. These solicitors should ask to be announced and after seeing one person they should return to the information desk and ask to be announced to the next person. When you know a man has previously not complied to this, advise him tactfully of our rule. Should he still violate the rule of going through the office unannounced from desk to desk, report immediately to your superior. The rule is definitely that no one is permitted to call from desk to desk for any reason whatsoever, unless given special permission which will be done only on very rare occasions, and even in such cases a guide may be provided.

6. Collectors for credit clothing houses, insurance companies, furniture stores, etc., are not permitted to see our people during office hours.

ANNOUNCING CALLERS

1. Visitors wanting to see the Chairman of the Board must give their card and the nature of their business. This information is taken by the girl at the information desk directly to the Chairman's secretary or his assistant. This should be done in person, as the desk is near the Chairman's office.

2. Visitors are to be announced to the executive by telephone. If there is already a visitor with the person who is being called upon, tell your new visitor that Mr. A or his secretary will call when Mr. A is free. If the secretary does not call within a reasonable time, the information desk girl will call again.

If Mr. A is in a conference, but his secretary knows that he will be free shortly, the girl at the information desk tells the visitor that if he cares to wait, we will be glad to have him do so and then wait for Mr. A's secretary to call when Mr. A is free and the information girl should follow through to see that the visitor is taken care of as promptly as possible. He should be kept informed.

3. If the caller is asking to see an employee who works under a department head, the department head should be consulted over the telephone and, if it is convenient for the employee to do so, the caller should be received by the employee at the information desk.

4. If the caller is asking to see a secretary, the secretary should be called on the telephone. Ordinarily a secretary should receive callers at the information desk.

WHEN A PERSON REFUSES TO SEE A CALLER

If Mr. A is called upon and is too busy to see the caller, the information girl tells the caller that Mr. A is busy and that he cannot be seen just now, but if the caller will give an idea as to whether he desires to see Mr. A at another time, an appointment should be made by telephone, or he might call back at another time.

If Mr. A states positively that he is not interested in seeing the caller, the information clerk will have to say something like this: "Mr. A is not interested in what you have to offer." Of course, all possible courtesy should be extended so as not to be irritating. (We do not give home addresses of employees without permission from the employee.)

REPORT ON CALLERS

A visitor's report is made for each day showing information as follows:

<i>Name</i>	<i>Company</i>	<i>Man Called Upon</i>
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One copy of this report is sent to the Buying Department (this is for control of vendors who may come in to call upon individuals when they should have called upon the Buying Department). A second copy is kept at the information desk.

At the end of each month a recapitulation is made and the total number of callers shown for the month. One copy is sent to your supervisor and a copy is

held at the information desk. If special groups, such as from schools or conventions of some kind are being held, the total number of persons passing the information desk in each group should be reported specially.

HANDLING MAIL

1. Special deliveries are signed for at this desk. After signing, a messenger should be called and the mail taken immediately to the person to whom it is addressed. If a special delivery letter has the address of only the company, it should be sent to the mailing division by special messenger. The mailing division will handle in a special way, again dispatching the mail by special messenger, to the proper person.

2. Packages which are addressed to an individual may be accepted. If they are addressed just to the company, they should be sent to the Receiving Desk for handling.

FILL-IN WORK

Work may be assigned to the information clerk by her supervisor or his secretary. Work should not be accepted from anyone else, because misunderstandings may arise due to the order in which jobs should be completed.

RELIEF CLERK AT THE INFORMATION DESK

The person relieving at the information desk should be as familiar with the work as the regular person on the job. The hours of relief are:

10:00 to 10:15

12:15 to 1:15

3:00 to 3:15

VISITORS DESIRING TO INSPECT OUR OFFICE AND PLANT

Any person or group wishing to be taken through the office or mill should be referred to the Personnel Department.

If the visitor is a dealer or consumer interested in our products, it is advisable to consult with the sales manager (or his secretary) who is concerned and if the sales manager can do so, the visitor should be given special attention.

DONATIONS

Persons asking for money or product donation should be referred to the Director of Personnel.

If the donation requested is some product which is to be used at a church bazaar or festivity of some kind, the request should be referred to the General Sales Manager of the Cereal Department.

No one is permitted to solicit employees for donations of any kind.

BEGGARS, DRUNKS, ETC.

Visitors of this type may make trouble; hence when they come in, one of the nearby men who understands the situation should be called and allowed to handle it.

The information clerks should, in no instance, make personal donations—all beggars are to be dismissed at once.

APPLICANTS FOR POSITIONS

Persons applying for work on our sales force or in the office should be referred to the Personnel Department and sent immediately to the Personnel Floor, where the Personnel Department information clerk will receive the visitor.

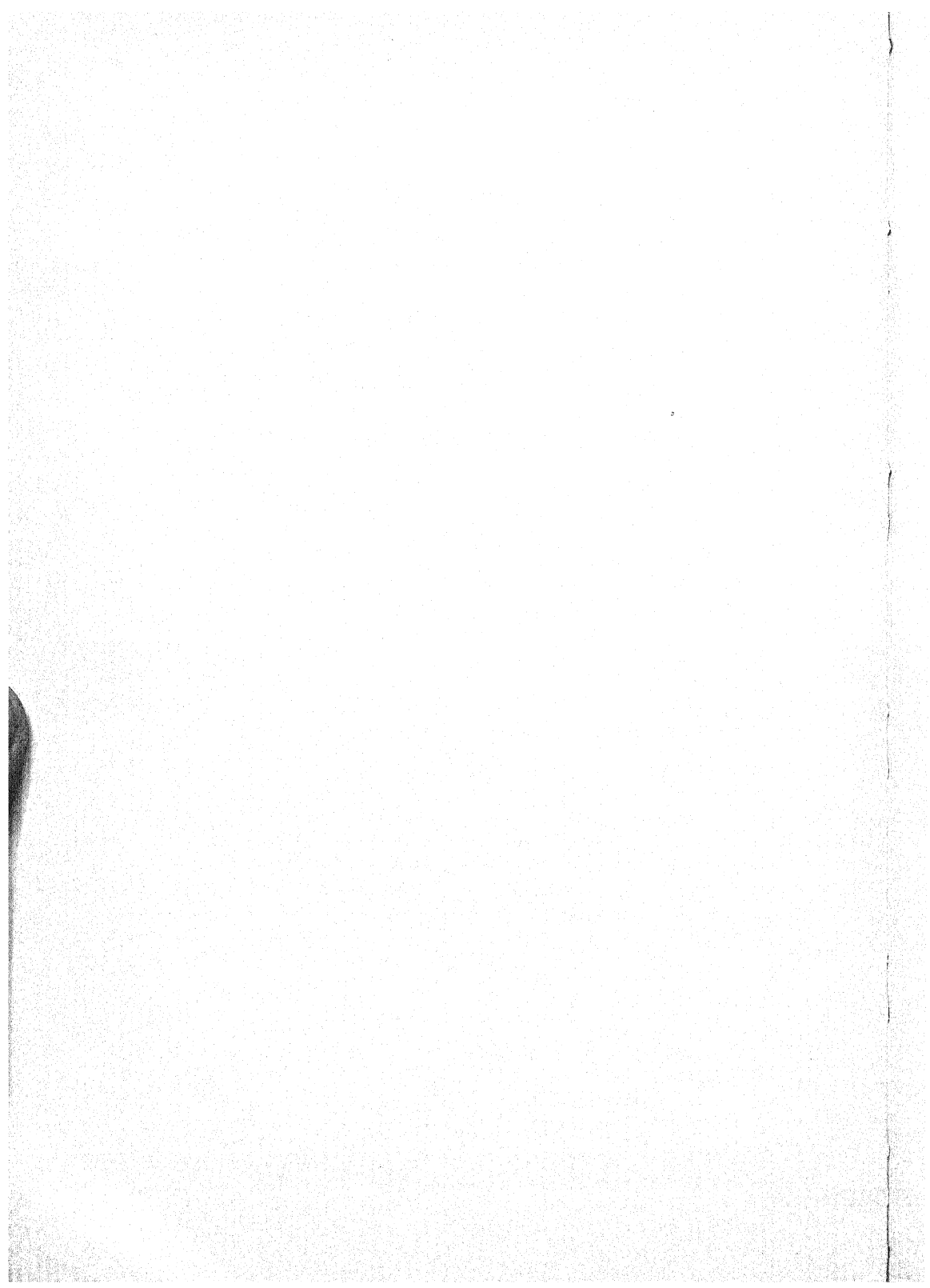
If, in the judgment of the information clerk, the applicant is of a type who would not, under any circumstances, be considered for employment, the visitor should be told that we have no work for them and she dismisses them courteously.

Appearance and Location of the Reception Room.—The reception desk or room should be located at a point that will make it easy to intercept visitors as they enter the building or leave the elevator. In the small concern where the reception clerk must also act as telephone switchboard operator, some added provision for the location of this service facility will be needed, but it should not cause the reception desk to be located at a point remote from the point of entry into the office. The reception room should be sufficiently large to provide seating space for the maximum number of visitors expected at any one time. Comfortable chairs, one spare desk equipped with telephone and tables with company literature, magazines, and other literature or perhaps a display of company products or manufacturing processes should be a part of the equipment of the room. The reception clerk's desk should be equipped with a telephone and sufficient drawer space to house such records of personnel, location, duties, and other information as will be needed in serving visitors—as well as to provide space for storing the fill-in work which may be assigned. The room should be well lighted, tastefully decorated, and in all respects should be fully representative of the company.

Ordinarily, the importance of the reception service is not sufficiently emphasized and therefore the personnel selected for the work, the location of the reception room, and the equipment and space assigned to it are unsatisfactory or inadequate. The office manager must be fully aware of the need for the service and must take a personal interest in seeing that it is maintained at a high level.

PART V

THE CONTROL ELEMENT



CHAPTER 21

PLANNING, SCHEDULING, AND DISPATCHING WORK

Planning in the Office

Management Planning.—Before any reasonable action can be taken in any enterprise there must be some measure of planning. It is “fundamentally an intellectual process,” says Urwick, “a mental predisposition to do things in an orderly way, to think before acting, to act in the light of facts rather than guesses.”¹ From top management to work detail planning, the process always intends action; the objectives, the trend, and the method of getting something accomplished. “The substance of management,” writes Harry Arthur Hopf, “comprises the four functions of planning, organizing, co-ordinating and controlling,” and planning, he adds, is composed of “analysis, simplification and standardization.”² Office planning transfers this major function of management to the sphere of the modern office. It becomes the art of assembling facts and evaluating them in new combinations for executive decisions.

Office Planning.—The office, where records are kept, statistics compiled, communications maintained, and clerical work is performed, has expanded year by year in size, importance, and complexity. When the office is small and overshadowed by other functions of the business, the volume, costs, and supervision of its activities are considered in the clerical pattern of the organization; when the office is large—and some enterprises are almost all office—its management takes a place in the executive pattern. In either case there is always office planning as a prerequisite to organized action. Where there is emphasis on the importance of office activities, planning is recognized as separate from supervision and performance. Operating supervisors can fulfill their responsibilities most efficiently when relieved from the planning function. A scientific approach to office management assumes a skilled technique, cumulative experience, and opportunity for research. This can best be afforded by centralization and specialization of planning work. The office administrator has services to plan and services to render, and in

¹ L. Urwick, *The Elements of Administration*, Harper & Brothers, New York, 1943, pp. 26-34.

² Harry Arthur Hopf, “Office Management: Its Development and Future,” *NOM.A Proceedings*, Philadelphia, 1942, p. 5.

the division of labor his executive acts involve both office analysis and office operations.

Scope of Office Planning.—Basic to any office is the space occupied, with questions of layout and work conditions. Office materials and implements must be used, and this involves standardization of furniture, machines, appliances, and supplies. There are communications within and without the space, which include telephones, telegraph, intercommunication devices, mail service, and correspondence. The methods by which we obtain systematic action involve studies in form design, filing, and work simplification. Lastly there are clerical employees and supervisors, who utilize space, materials, and methods in an integrated pattern to attain office objectives. The offices in a company are not confined always to one location. Office planning, therefore, finds additional problems in uniformity of service, relationships among units of organization, and variety of requirements. The planning field is often referred to in terms of men, machines, materials, methods, and management. Any listing of the office management field, as indicated by the contents of this book, reveals the breadth and variety of its responsibilities.

OFFICE ANALYSIS.—The scope of office planning covers all office activities continuously in the fact-finding and advisory phases of administration. All factors must be planned, organized, coordinated, and controlled so that they will mesh together efficiently and economically in actual operation. Analysis of facts is necessary to plan movement forward, order in routines, service to other offices and to the public, and control of practices and costs. Office analysis finds expression in various interrelated activities, as indicated by the following sections:

1. *Standardization.* A standard is a decision on physical specifications or method derived by careful investigation of all factors. It represents the best knowledge at the time. When once established the decision is used over and over again in office operations and removes routine matters from executive attention. Standards should not be maintained so rigidly or inflexibly that they cannot be adjusted to a job or changed to meet new conditions or additional knowledge. In standardization there is more of a sense of harmony than regimentation in operations.³

2. *Simplification.* The steps by which work is performed at a desk, from desk to desk, and among units of an organization need analysis to produce the simplest form of procedure. Any routine involving forms, machines, appliances, layout, and methods that has been unreviewed for years promises savings through work simplification. Each detail involves the classic questions: why, what, where, when, who, and how? Much has been written of

³ Dr. John Gaillard, "Standardization in Tomorrow's Office," *NOMA Proceedings*, Philadelphia, 1939, p. 55.

the "one best way," and no one would question that it is the most direct and simple routine. Paper work involves orders, requisitions, correspondence, and files. Any studies relating to paper handling should include such questions as: what the paper is, how and why it is used, where it comes from and goes, and how it is related to machines and appliances. More and more the techniques of motion economy are being applied to work in large offices where paper is handled in great volume.

3. *Controls.* Control has reference to the control of practices and procedures,—not of persons,—and the correlation of different factors into a working whole. The executive in charge must have an effective overview of the whole without getting involved excessively in any of the parts. It is the work of office planning to develop such devices of control for the executive as: (a) reports with simple and significant indexes of activity, (b) written instructions which extend the current knowledge of executive decisions and of standard procedures to all offices. Services are periodically reviewed to maintain standards and refine processes. Questions of centralization of similar clerical acts or decentralization of service to the point of use are problems of planning in each organization. Like production management before it, office management has a developing interest in measurement of production.

4. *Administrative Analysis.* Many office executives have responsibility for definition of functions and for the control of office personnel. Since it is difficult in analysis to separate the person from the job, it is proper for office planning to advise management on the pattern of the organization, make studies in lines of delegation, and report on relationships. It assembles the facts on clerical operations and practices and plans the program of clerical training for induction and job improvement. Where there is a suggestion system as an incentive to employees, office planning has a close association with the evaluation of all suggestions. Its duties are not executive but always advisory and limited to fact-finding and recommendations.

Organization for Office Planning.—Office planning as a function normally comes to a company which is already in operation, and therefore it must adapt itself to the type of organization in existence. The interest in office management is introduced through some executive who emphasizes and expands its influence. It appears logical, however, that office planning and the rendering of office services should be closely associated in the ordinary business office. The last decade has seen the steady rise of the office manager as an executive reporting directly to top management. Office planning, therefore, should be a part of his responsibilities or both the office manager and the director of planning should report to the same administrator.

FORMS OF ORGANIZATION.—The adaptation of office management to the enterprise has resulted in various forms of organization for the application

of its principles. There are companies in which responsibilities are centralized for all similar activities. On the other hand, many companies are completely decentralized, and both office services and planning are the responsibility of each department. As one would expect, there are many variants ⁴ of both forms and one cannot escape the conclusion that they represent evolutionary transition. The trend appears in larger organizations toward a centralized control, either administrative or functional. Office planning naturally follows office management in this trend and the tendency is undoubtedly toward centralization and specialization of the function.

SIZE AND COST.—Office planning is not necessarily the work of a unit alone but may be carried on by one or more individuals. The number required will necessarily depend on the organization. One comprehensive report ⁵ concludes that it is based on the needs of each individual company. An executive experienced in these matters ventures an estimate ⁶ that 2% of an office payroll is adequate to spend on planning. While some companies distribute the charge of planning to departments served, the majority allocate the costs to administrative overhead.

PLANNING STAFFS.—The last decade has seen the development of planning units under different titles, in such types of large organizations as manufacturers, insurance companies, and government agencies. These units may emphasize administrative analysis, procedure and method study, or standardization, but they tend to cover all aspects of office planning. They afford a centralized unit for specialization, research, and staff assistance to the executive.

LINE AND STAFF.—Whether there is one analyst or a staff there should be a clear understanding of staff and line responsibilities. The staff is engaged in planning activities only, and the line organization is engaged in "doing" activities or performance. The staff is composed of all persons who devote their time exclusively to analysis and research. It is an independent unit that does not direct or appoint personnel, issue orders, or take responsibility for operations outside its own organization. Everything the staff recommends is referred up, not down; and is carried out under the supervision of line management. When any administrative responsibility is added to a staff activity, it becomes a line function.⁷ Staff work results in advice and

⁴ *Functions of the Office Manager*, Policyholders Service Bureau, Metropolitan Life Insurance Co., New York (n.d.), pp. 6-11, 23-30.

⁵ Lester H. Van Ness, *Establishing a Planning Department in a Life Insurance Company*, Report No. 10, Life Office Management Association, New York, 1941, p. 2.

⁶ Wayland S. Bowser, "The Why and How of Methods Improvement," *NOMA Proceedings*, Philadelphia, 1943, p. 60.

⁷ Luther Gulick, "Notes on the Theory of Organization," *Papers on the Science of Administration*, Institute of Public Administration, Columbia University, New York, 1937, p. 30.

recommendations. The line organization acts upon them and carries them out through the media of supervision and orders.

RELATIONSHIPS.—Modern organization has not found it so easy to understand and apply staff advice as it has executive orders. There are actually two flows of authority from top management. One is a vertical flow from management to those offices which carry out the purpose for which the enterprise was established. This is primary because success or failure of the business depends on release of products or services. There is likewise a vertical flow of authority from top management to auxiliary or service offices. Then to become effective this latter line of authority must meet the primary flow to primary offices. The office analyst should not forget, however, that his flow of authority is secondary and that his is an auxiliary service.

AUTHORITY.—The staff analyst must have the backing of management to be effective. He has not the prestige of the doctor or the lawyer or even of the personnel director or the accountant. He must be placed far enough up in the organization to give him standing and he must report to an executive whose orders carry authority to all departments. His responsibilities should be clearly defined and explained in company instructions. Even in a recognized position, he must still understand that there is no authority after all like the authority of competence.

THE ANALYST IN OFFICE PLANNING.—Many companies are selecting someone from among their own employees to do planning in their offices. This may be a good practice as he already knows the organization, knowledge of which is an important aspect of his general fitness. There is the danger, however, that he may have too great a respect for tradition merely for the sake of tradition. He should have a good understanding of office management or the alert absorbent interest to acquire it. More and more it is expected that he should have college work in business administration or the equal of it in experience. The sound and orderly analytical mind may be developed through such work as engineering and law. Accounting is an essential to his understanding. Almost all courses in the college framework can contribute something to a good analyst.

QUALITIES.—It goes without saying that he should possess the analytical type of mind. He should like to work with details because he must be able to dramatize them in speech and writing. He should have social poise, know how to get along with others exceptionally well and how to maintain good will. While it is often too little considered, he should know how to use English fluently and simply in conference and reports. He should have an experimental attitude toward his work. While he should not try to display his imagination in the spectacular, he should have a mind for gadg-

ets, inventions, and new ways of doing things. He should have patience with persons, personality, and delays. Steps of progress are made one at a time; if he cannot get all he wants, he should learn to accept what he can at the time. Industry is always important, and there are few jobs where initiative is more essential. Even the best of analysts are criticized for slowness and delay, and too often this criticism is just.

ATTITUDES.—Too often the analyst in office planning is openly or covertly considered an alien in the particular office which he is investigating. Therefore his attitude in performance of his work is most important. The relationship should be one of technician and client. He should approach his assignment with an open mind, without assumptions until his facts are assembled. He should exercise the tact and courtesy of a sales representative because he too must make progress through the minds of others. He should find means to win cooperation not only in fact-finding but also in the installation which results from his findings. He should be in a position always to go back with a welcome. He should question every fact presented to him before he can be certain that it is a fact. He should know how to compromise, particularly on minor issues, in order to obtain major objectives; he must have a sense of proportion in these matters. He should give credit generously and genuinely to others who have contributed to his study. Half his job is to search out the facts and come to sound conclusions, but half of it too, is to get something done about them by other persons.

TECHNIQUES.—Only practice on the job will teach the analyst how to approach a study, handle himself with confidence, and present conclusions effectively to superiors. Largely he will be engaged in finding, assaying, reorganizing, and applying facts. To get the "feel" of the job he must first review the files, charts, and records. He then gains his information through interviews and observation where the work is actually done. He should question and evaluate each item of interest and take copious and orderly notes on methods, motions, machine or appliance use, practices, and persons. All this should be done without the appearance of snooping. When he is sure that he has all the facts and complete understanding of the situation with nothing left out, he squares his facts with all that he knows or can obtain about sound simple business practice. He arranges his information for presentation in conference or report. Short reports as a basis for discussion are usually best. He should remember that he has no responsibility to astonish anyone with his recommendations. All that is required is intelligent and constructive thinking.

Direction of Office Planning.—While analysis in office management may be classified into standardization, simplification, control, and administrative studies, office planning should be organized along more specific lines to be effective. All the elements of planning are intermingled in all work and ob-

jectives. Many requests and orders come to the office analyst because some procedure has broken down; but these "trouble shooting" jobs should not be the complete program of a staff. It is certain that no company has achieved all that office management has to offer in efficiency or economy. It is the responsibility of a staff to develop a sense of leadership in office management and to organize its efforts toward specific objectives.

SPECIFIC PROGRAMS.—Staff work should be organized to make its research in standards and its analysis in simplification continuously effective. The programs in planning office management may vary necessarily in emphasis among different organizations and even the classification may be expressed in a variety of terms. In general the objectives will fall somewhere within these subjects: office methods, office materials, physical facilities, personal practices, office controls. The contents of each of these subjects are listed below:

1. *Office Methods.* Procedure Studies, departmental audits, surveys in work flow, method studies in paper work; Records Administration for records and files in both current and disposal aspects, retention schedules; Forms Centralization, review of new forms in physical and functional aspects and general coordination; Printing Coordination, advice on the maintenance of standards; Correspondence, methods, quality of letter writing, form letters, telegrams; Trouble Shooting for particular investigation of breakdowns and bottlenecks.

2. *Office Materials.* Research, establishment and maintenance of physical standards and standards of use for supplies and equipment; Review of Requisitions; Machine Applications; Labor-Saving Devices, gadgets and appliances.

3. *Physical Facilities.* Space Studies, allotment, standards, and forecasting requirements; Work Conditions, lighting, acoustics, ventilation, heating; Building Operations, custodial practices, maintenance, and utilities; Communications, telephone, communication systems, messenger service, mailing; Layout, associated in all respects with methods; Safety Factors.

4. *Personnel Practices.* Job Analysis, clerical studies and review of clerical requisitions; Training, orientation, on the job, and supervisor; Testing; Morale, welfare, incentives, safety, health, grievances.

5. *Office Controls.* Organization Studies, charting, definition of functions, supervision; Measurement, production and performance statistics; Costs; Reporting, preparation and circulation of reports; Manuals, preparation and circulation for organization, policy, and procedures.

STAFF ADMINISTRATION.—The long-range and immediate objectives of staff activities should be planned and scheduled. Frequent meetings of the staff should be carefully prepared in order to develop techniques, to coordinate efforts, and to build professional competence and personal morale.

The analyst should work on an assignment basis with definite specifications for the job to be done, written on an assignment sheet or order. Progress should be periodically reported and the assignment closed with a final report which remains as a case history. Schedules of steps to be taken in the assignment may sometimes be standardized on a form for guidance. Much of staff success depends upon the leadership exercised by the chief and his ability to maintain good will and to get programs initiated and accepted among the various units of organization.

SAVINGS.—The cost of planning work, which is largely man-hours, is easier to record than the savings that result from planning studies. A record should be kept although many studies are not initiated to obtain immediate savings. Studies may fall into the following groups: those which can reveal savings immediately; those which would require unwarranted additional study to define exact savings; those which promise savings but the results of the study are negative; those which involve no monetary savings but have other important values. The objective of planning should always be economy. This may result indirectly from improved working environment, more efficient forms, better channels of information, standardization, training, or employee morale. A conscientious record, however, will show that much of planning work can be reduced to monetary savings which will measure the progress of the function.

The subject of office planning is closely related to all the other topics in this handbook. It is a management approach to these activities or an employment of these techniques. Planning is always involved in the field of office management whether it is recognized by separation or not. Many generalities expressed here are amplified in greater detail under other headings in this book. The planning function in the office will become better recognized and organized as the office continues to expand in size and complexity. As more technical education is demanded, the work will be in more competent hands. It will be more fully understood that planning is fundamental to scientific office management.

Scheduling Office Operations

The Practice of Scheduling.—The purpose of scheduling of office work is to develop tools so that the work required of that particular section is accomplished in time to be used effectively for whatever purpose it is being prepared. Other factors such as performance will influence accomplishment, but the schedule as a control tool aids in the achievement of this objective.

Practical Definition of Scheduling.—Scheduling is the application of a time factor to the movement of work through the office. The following is preliminary information necessary in establishing a schedule.

Knowing: What work operations are to be accomplished.
At what time they should be accomplished.
By whom they should be accomplished.
Length of time that should be taken in accomplishment.

The following information is in part the basis for work control where scheduling is applied.

Comparison: Current against scheduled accomplishment.
What operations are late.
What operations took more time than allowed.
Is correct personnel available?

Organizing and Installing a Scheduling Program.—The preliminary step in establishing a scheduling program in any department or unit is to analyze all operations to determine those operations which should be scheduled in order to establish the proper control. The decision as to what should or should not be scheduled is apt to be difficult at the start of the program. This is discussed later under Applications.

Another preliminary step is to break down the operations into units of work which can be readily handled in the actual operation of the schedule. This is discussed in Units of Work.

After the work is isolated into units then these units must have the time factor applied to them. Time standards are treated in Time Standards as a Basis for Scheduling.

The success of a scheduling installation depends entirely upon the acceptance of the program by first and second line supervision. It is at this level where the greatest use and control will be obtained by schedules. Therefore, these supervisors should be consulted at the very inception of the program to insure that they are familiar with the objectives of the program and that its major objective is to aid them in their work and in answering questions from their superiors. There will be considerable detail work to the establishment of the procedure and, if possible, a staff person should be assigned to this work. He should work with supervision in settling the details and operations and also assist in working out the "bugs" during the installation period. At no time should the schedule program become his project. It should always be the project of the supervisors.

Applications.—1. Repetitive and Routine Operations. Examples: Typing purchase orders and sales orders—figuring payroll. This type of operation is the easiest and the operation which should be scheduled first.

2. Miscellaneous Clerical Operations. Examples: Preparing monthly or weekly reports. Making price or payroll changes, etc. These operations and others may be spasmodic or regular in recurrence and seem more difficult.

The regular items should be scheduled, but the non-regular items should not. Upon examination, it will be found that the regular items always have a time, before which they cannot be started and have a time when it is expected that they will be done.

3. **Miscellaneous Operations Upon Demand.** Examples: Typing as requested. These operations are more difficult to schedule. If sufficient clerical work is found to be of this nature, then a special schedule may be installed. If it is found that only a portion of a clerk's time is spent on these items, then that portion of her time should be allotted to "On Demand" work and the rest of her time scheduled.

4. **Supervisory Jobs.** In most cases it is inadvisable to schedule these jobs.

Basic Principles Applying to Scheduling.—The following principles should be adhered to in establishing any scheduling program:

1. Be simple in operation. To be more effective it must be understood by all who come in contact with it. If it is complicated, it creates suspicion in the minds of those who are scheduled on it.

2. Consume little time to operate. Unless it takes very little time to operate it easily becomes a job which can be "put off" and it immediately loses its effectiveness when it is not up-to-date.

3. Be easily understood and quickly readable. It should present an over-all picture of the unit scheduled and should not require memorizing of symbols to interpret. The quicker it can be read and interpreted the more supervision will use it.

4. Furnish timely, factual, and brief status reports. It should be so set up that control reports for higher supervision may be extracted from it quickly. Also it must furnish these reports when the conditions arise and thus it can most easily be corrected, not when the situation is history.

5. Be useful to all supervision. The schedule itself should be such that it furnishes operating information to first line supervision and the status reports should perform the same function in a condensed manner for higher supervision.

Units of Work.—In any schedule installation the work must be broken into units which follow as near as possible natural divisions. It is important not to make units too fine. In some cases it is advisable to take groups of operations which follow consecutively and classify them as one unit. Example: Where data are received in a department and are of small volume, several operations might be considered as a "Unit."

Checking off the list to show receipt.

Posting to a record.

Balancing the record.

Some operations will become units in themselves. Example: In figuring payroll the calculation of gross pay on a sizable department would be one unit while the checking if done by another clerk would be another.

Others are of such size and volume that they must be broken down into parts of operations. Example: In figuring payroll the calculation of gross pay for an exceptionally large department undoubtedly would be divided into at least 2 groups in order to facilitate handling and scheduling.

Time Standards as a Basis for Time Scheduling.—Time studies should be used wherever possible to allot times to operation. However, if time studies are not available, estimates arrived at by the clerk and his supervisor on the basis of experience, are a practical and workable substitute. Considerable objection will be raised to estimating some operations, such as striking a trial balance. These items must be estimated and an average time can be arrived at which is a fair measure.

Methods of Scheduling.—There are a number of different methods of scheduling, which in most cases accomplish all or a portion of the objectives of scheduling. All of the various methods have their place in the office. A decision should be made as to which method should be employed only after a close analysis of the particular conditions and a decision as to the degree of control which is desired.

There are some general observations which may be made that will assist in the selection of the proper method of scheduling.

1. If the schedule is to be operated by the supervisor and is for his own use, then Schedule Sheets or Visible Index Drawer methods are adequate.
2. If only major items are to be scheduled, Schedule Sheets or Visible Index Drawer are adequate. Example: Ledgers balanced—payroll completed—cost distributions completed.
3. If control is desired on reports issued from the group, then Schedule Sheets or Visible Index Drawer are adequate. Example: Tabulating unit operating as a service activity may be controlled partially by this.
4. Where the progress of the group is of interest to all members, it should be on a wall board. Example: The operations of a cost department are interdependent one upon the other to produce a monthly closing.
5. Where detail follow-up of individual operations is necessary, then the ticket board is advisable. Usually all members of the group are also interested and the visibility has a definite psychological advantage. Example: In hand figuring of an incentive payroll of a large number of departments visibility is advisable.

to balancing the reports. Columns 12 and up are used to record the performance each month.

At the completion of each day the supervisor marks in the correct time column the time the operation was completed. He also makes out a list of all work which is late and all work which is scheduled to be done the next day. This becomes his next day's work.

This type of schedule is very simple and lends itself particularly to scheduling the issuance of reports. It does not lend itself to detailed analysis of operations which go into the preparation of the report. It is apt to cover a large number of sheets which become bulky. If the time element is small the sheets must be duplicated frequently. Sheets become worn and messy. Accomplishment is not visual to operators.

VISIBLE INDEX DRAWER OR BOOK.—This consists of a visible index tray or book. A card (Figure 140) for each unit of work or operation is prepared and placed into the drawer or book.

Schedule							Personnel	Hours Reg.	Special												
Start			Finish			<i>John Doe (Assigned)</i>	<i>16</i>														
Week	Day	Time	Week	Day	Time																
Reg	<i>1</i>	<i>3</i>	<i>8</i>	<i>1</i>	<i>5</i>	<i>5</i>	<i>Mary Smith</i>														
Close							Total														
Months	Start			Finish			Remarks														
	Week	Day	Time	Week	Day	Time															
Jan	<i>1</i>	<i>3</i>	<i>12</i>	<i>1</i>	<i>5</i>	<i>5</i>	<i>✓</i>														
Feb	<i>1</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>5</i>	<i>4</i>	<i>✓</i>														
Mar.	<i>1</i>	<i>4</i>	<i>8</i>	<i>2</i>	<i>1</i>	<i>9</i>	<i>Data from Dept late</i>														
April																					
May																					
June																					
July																					
Aug																					
Sept.																					
Oct.																					
Nov.																					
Dec.																					
Dept. A Cost							M	T	W	T	F	M	T	W	T	F	M	T	W	T	F

green
 red

Figure 140. Visible Index Card

The cards are inserted in chronological sequence by scheduled completion date. The schedule is posted in the upper left-hand corner. Also, all personnel who are able to do the operation, and the estimated time of the operation. The exact times are posted in the bottom half of the card and a colored tab is inserted on the visible strip when the work is started and a different colored tab is inserted upon completion of the work. Thus by

referring to the current day all cards above this point should have a red tab. Those which do not are behind schedule.

This method is very similar to the Schedule Sheets, but has the added advantage of recording much more history and performance. It also is much neater and gives a quick over-all picture of all items scheduled.

SCHEDULE BOARDS.—Schedule boards are of three types: home-made peg schedule boards, purchased peg schedule boards, ticket schedule boards.

Homemade Peg Schedule Boards. This type of board is usually designed by the department for which it is wanted, and made to its specifications and

Departments		1st Operation Name	2nd Operation Name	3rd Operation Name	4th Operation Name	
Dept. A	o	o	o	o	o	
" B	o	o	o	o	o	
" C	o	o	o	o	o	
" D	o	o	o	o	o	
" E	o	o	o	o	o	
" F	o	o	o			

Figure 141. Homemade Peg Schedule Board

is fastened to the wall. It has variables such as time and operations on the top and left sides and holes in which pegs are placed to record accomplishment. Pegs of the same or different colors may be used. The size of the board varies with the use to which it is to be put.

In the example shown in Figure 141 the purpose of the board is to control a mechanized payroll installation. The department names are painted on the left of the board and the operations in the order of sequence are painted across the top. When an operator finishes an operation on a given depart-

ment she moves the peg for that department under the operation which has been accomplished. Thus a glance at the board from any point in the office will show the condition of the work.

This type of scheduling is also very simple and lends itself particularly to complete operations on a regular time cycle, such as payroll. It has the added advantage of being visible to all employees at all times and is also operated by the workers themselves. It does not permit the measurement of the effort of an individual or the department and does not offer the opportunity of recording history for future study.

Purchased Peg Schedule Boards (Figure 142). There is available for purchase a board which is hung on the wall either flat or on swivels so that a battery of them may be arranged. This board comes in different sizes, and units of them may be combined to produce larger units. It has a visible index on the left, and opposite each index strip is a ruled space on the board. A small peg attached to an elastic string is on the left of the board. There are furnished with this board a number of varied colored pegs which are used to indicate various items such as date due to be completed, etc. The time element is used across the top of the board.

The usual method of operation of this type of schedule board in an office is to place a card for each operation to be completed on the visible index on the left which is then used in the same manner as on Schedule Sheets and Visible Index drawers, i.e., to record history for previous periods of reference. A colored peg is permanently placed in the hole under the time at which the work is to be started and another colored peg at the time it is scheduled to be completed.

When the operation is started, the peg on the elastic band is moved out to the correct time and inserted in the board. Upon completion of the job this peg is again moved.

A string is placed vertically at the place indicating the current time. Thus everything to the left of this string should be completed and when an operation is not done, reference may be made to the visible index card for past performance or for any other information which may have been posted.

This board combines the advantages of the Visible Drawer Schedule and the homemade peg schedule Board. It has the advantage that it is on the market and can be obtained immediately, avoiding the necessity of construction. It is also highly flexible and can be adjusted to a large number of individual problems.

Photocopies may be made of each period's progress before resetting the board for the next period of time.

Where a large number of small operations are to be controlled, it becomes too voluminous. Also, because of its smallness it is not easily read except at close range.

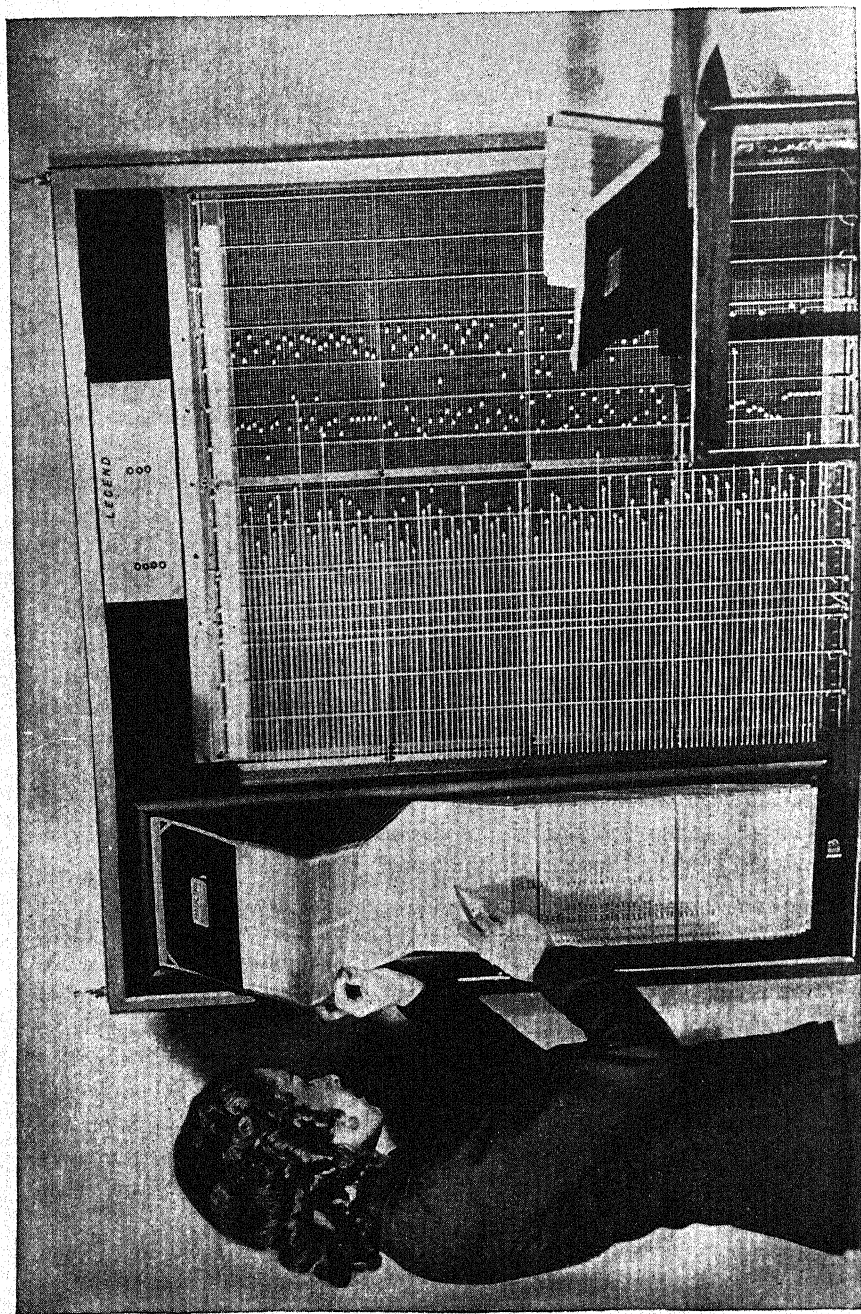


Figure 142. Purchased Peg Schedule Board

Ticket Schedule Boards. This board (Figure 143) is home-made and the size varies with the requirements. The two variables in most cases are the number of individual clerks' names across the top of the board, and the number of time elements (usually in days) to be listed down the left-hand side of the board. Each space is made large enough to accommodate a bristol board ticket (Figure 144). The usual size of the ticket is 2 x 3 in., but this size may be larger or smaller. In each space a metal hook is placed

	M. Jones	J. Doe	R. Roe				
Mon.	o	o	o	o	o	o	o
Tues.	o	o	o	o	o	o	o
Wed.	o	o	o	o	o	o	o
Thurs.	o	o	o	o	o	o	o
Fri.	o	o	o	o	o	o	o
Sat.	o	o	o	o	o	o	o
Mon.	o	o	o	o	o	o	
Tues.	o	o	o	o	o	o	
Wed.	o	o	o	o	o	o	
Thurs.	o	o	o	o	o	o	
Fri.	o	o	o	o	o	o	
Sat.	o	o	o	o	o	o	
Mon.	o	o	o	o	o	o	
Tues.	o	o	o	o	o		
Wed.	o	o	o	o	o		
Thurs.	o	o	o	o	o		
Fri.	o	o	o	o	o		
Sat.	o	o	o	o	o		
Mon.	o	o	o	o			
Tues.	o	o	o	o			
Wed.	o	o	o	o			
Thurs.	o	o	o	o			
Fri.	o	o	o				
Sat.	o	o	o				

Figure 143. Type of Ticket Schedule Board

to hold the ticket. Different colors of tickets may be used for different units of time, such as weeks.

A ticket is made out for each operation and placed on the board under the clerk to whom it is assigned and opposite the day on which it is scheduled to be completed. At the end of the day each clerk removes the tickets for operations which have been completed that day and turns them in to the supervisor. At any given day the board should be bare above the current day. Any tickets remaining should be investigated to see if they will cause delay or make rescheduling necessary.

Usually the board is quite large and this has been considered, under different circumstances, as both an advantage and a disadvantage. The condition of the work is visible to both supervisors and clerks. The tickets may be used repeatedly. The clerks operate the board themselves. One disadvantage is that it does not permit of the recording of performance, al-

Time and Day Due In	○	Job Number
	Time Allowed	
Operation:		
Operator Assigned:		Time and Day Due Out

Figure 144. Type of Schedule Board Ticket

though this may be posted to the back of the ticket. In general, however, this has not proved satisfactory. One of the main advantages of this type of board is that it lends itself to use in an office where there are a large number of small units of work to be controlled.

Possible By-Products of Scheduling.—While the following items are spoken of as by-products they could very easily be regarded as basic reasons for installing a scheduling program. They are spoken of as by-products only because in numerous cases where scheduling is already in effect, it is not realized that these results are easily available.

1. Insure correct volume assignment to individual clerks. By adding up the times in units of days for the operations assigned to any one clerk and comparing with time available ($8 \text{ hrs.} \times 60 \text{ min.} = 480 \text{ min.}$) it can be seen immediately whether too much or too little has been assigned to that clerk.

2. Eliminate peaks by furnishing more help at the correct times and in the correct places. After each clerk's time has been analyzed as described above the trouble points, where too much work has been scheduled at a given time, are immediately highlighted and corrective measures may be taken.

3. Foresee and cover unavoidable peaks. After this analysis has been completed, it will be seen that some peaks are necessary and unavoidable. Where these occur, plans for additional help may be made well in advance.

4. Furnish factual data as to the number of clerks required in the group scheduled. By accumulating the times assigned to each clerk into a total report and comparing with total time available, the exact number of clerks required by the department is immediately determined. Keeping these figures current produces for management a tool for determining the exact personnel requirements of the office.

5. Create better understanding between clerks and their immediate supervisors. The ticket schedule board is very effective in this as there can be very little misunderstanding as to what is expected of each clerk in production and when it is to be accomplished.

6. Aid in figuring machine requirements on a mechanical installation; judging personnel performance; and assignment of vacation periods.

Coordinating Departmental Schedules.—In any office different methods of scheduling may of necessity be employed by different departments. This practice may create confusion between departments and obviously all departments must be coordinated. In this coordinating, certain points should be covered completely.

Common Terminology. Make very certain that reports and work common to two or more departments are called by the same name. Study should be made to insure that terminology used in various departments is the same.

Numbering System. Where reports or units of work are common to two or more departments a numbering system is advisable to avoid misunderstanding. This numbering can be tied into the due dates, such as 123115. This would indicate that it is due December 31 and #15 would identify this report to that day.

Method of Delivery and Receipt. One point for delivery and receipt of papers in each department should be established. The importance of this is not always understood.

Due Dates between Departments. Copies of these dates should be in each department and should be approved and accepted by the supervisors responsible for the work.

Periodic Meetings. Regular meetings of first line supervisors should be held as a means of clearing up misunderstandings, which if allowed to accumulate will create bad feelings between departments and result in serious delays.

Measuring Performance

Purposes of Measurement.—Measurement of performance is essential to the establishment of control over office operations. Its primary purpose

is to get the work completed in the least possible time, with the smallest possible staff and with the fewest possible errors. It has other very important functions. Production must be measured before work standards can be set, and standards are necessary in determining the relative efficiency of the individual worker, the compensation which he should earn and, therefore, his value to the company based upon the quantity and quality of his production. Measurement of performance of the individual or a group when applied against properly set standards of production provides the only scientific basis for:

1. Assessing the value of the individual worker
2. Making equitable wage adjustments
3. Controlling individual or group production
4. Intelligently planning to get the work done
5. Determining the staff required to handle any given volume of the work
6. Determining the time required to complete any given volume of work with the staff available to do it.
7. Making staff adjustments to follow the flow in order to obtain maximum production
8. Gauging the progress and results of a training program

Difficulties of Measuring Clerical Work.—Office work is difficult to measure both because of its intangible character, as compared with industrial production, and, because of the variety of operations which may have to be performed by an individual during the course of a day's work. Even if all of these operations contributed to the completion of a single clerical product—which in the majority of cases they certainly do not—measurement would yet be difficult, because the worker may be required to do more than fifty different things and often from ten to twenty different kinds of work during the day. Even though several persons may be engaged in doing precisely the same work, as for example, editing customer's orders, the time required to edit an individual order may, and frequently does, vary materially. Some orders require from two to five times as much time as others. Even under such circumstances the work is measurable provided the proper unit of measurement is selected. A unit of measurement can be found for practically any kind of office work. There are some kinds where the cost involved in measuring the work, and the very small proportion of the total work which these few jobs may represent, may make it too costly and therefore impracticable to measure. Such jobs usually involve creative work, as for example, the development of a sales campaign, the preparation of a manuscript, the drafting of a reply to an important letter, or the work of executives which involves many conferences for which the time required is not subject to control. Taken as a group and compared with the total over-all

work of the office such jobs will comprise a very small percentage, usually from 10% to 15% of the work except in unusual situations. The office of a trade association, where more than half of the staff are technicians, specialists and executives and in which there is a small number of clerical workers, might fall into this category. Even under such unusual conditions all of the work in such offices which can be measured should be measured; otherwise, there is no way in which the work can be controlled, the office properly staffed, or the employees equitably compensated.

Cost of Measuring the Work.—A deterrent to the more universal use of measurement in the office has been the fear of the cost involved, not only in the establishment of units of measuring the work, but in the keeping of the production records. This fear has been proved to be unfounded. If suitable units are determined for the different kinds of work to be measured, if the method of accumulating and recording the information is kept simple and if it is reported in usable form, the cost is negligible. Usually no extra clerical cost is involved where clerks keep their own production records and the supervisors prepare the reports. Even where production figures are compared with production standards and the workers are compensated under a payment by production plan, the cost can be kept very low. In one instance the cost of keeping such records for more than three hundred clerks including computation of their earnings required the services of only three persons. Posting of the day's individual production figures for a department of twenty-five clerks and tabulating and totaling the day's figures can be done in fifteen minutes or less a day.

Selecting the Unit of Measurement.—The difficulty in determining the unit of measurement will naturally vary with the type and complexity of the work to which it must be applied. The unit selected should be the simplest and most understandable one which will adequately fulfil its purpose. Usually the work will have to be examined to determine what the unit of measurement will be. Office work is susceptible of measurement in any one of several different ways:

1. By manually counting the finished clerical product.
2. By using a count made on a previous operation or in another department and transmitted by means of a routing slip to the current operation.
3. By mechanically counting the production as a by-product of a machine operation as for example, cyclometer readings taken from instruments on typewriters, duplicating machines, mailing machines, etc.
4. By direct mechanical counting machines as for example, using a special machine which will count large quantities of cards by running

the cards through the machine in a separate operation which does no processing of the work itself.

5. By use of weighing machines which convert weights into piece counts according to predetermined standards applicable to the work being counted.
6. By stacking work in a known pile of 50, 100, or any convenient number of pieces, then matching this standard stack with similar stacks until the entire volume of work has been measured, and multiplying the total number of stacks by the number of pieces in the standard stack.
7. By using the first and last number of preprinted serially numbered forms to determine the quantity of forms used.
8. By using the manufacturer's count as shown on a box of stationery, etc.
9. By using specially prepared scales as for example, a square inch scale or a line scale, to measure typing production.
10. By determining the average time required to complete a certain volume of work then converting total time consumed into number of pieces based upon the average time figure.
11. By any other method which can be devised and will do the work satisfactorily.
12. By the use of special ratios as for example, the clerical minute per order ratio (explained below).

COMMONLY USED UNITS OF MEASUREMENT FOR THE SIMPLER OPERATIONS.—For a few of the more common and simple office operations units of measurement are as follows:

1. Mail Room—Mail Opening—either (a) number of envelopes received in the mail or, and more satisfactory, (b) number of letters or other pieces of mail as determined by a count after the mail has been removed from the envelopes.
2. Mail Room—Outgoing Mail—either (a) count of pieces of mail received for mailing (if mail room encloses all mail in envelopes) or (b) readings of postage affixing machine counters or the count as determined by postage meters.
3. Filing Correspondence—number of letters filed, by operators and by time required, accumulated to give total filing volume for the section. (See also Removing Correspondence from Files, below.)
4. Addressing Machines—machine count of pieces, plates or stencils, run through the machine and by classes of work if necessary.
5. Typing, including Stenographic or Machine Transcription—unit is lines typed, using line scale for measuring *satisfactory* production only (not rewrites caused by errors) or the cyclometer point read-

ings from typewriters so equipped, or a special square-inch scale applied to the finished (acceptable) production. Note that with both the line scale and the square-inch scale method, only acceptable work is measured; therefore quality receives proper recognition. Recording production by cyclometer reading requires that supplementary controls be established if quality is to be given consideration.

6. Adding Machines—number of items added.
7. Check-Writing Machines—number of checks written.
8. Removing Correspondence from Files—number of requisitions received, provided the majority of requisitions call for only one piece or, group or folder of correspondence; if requisitions vary as to the number of requests per requisition, then use the number of letters removed from file, counting any groups of attached or stapled correspondence as one piece.
9. Dictation—Routine Correspondence—classify as to average time required to handle classes of varying complexity and difficulty, then establish unit as the number of letters of each class dictated, or classify as above but weight classes according to degree of difficulty allowing 1 point per letter for the least difficult, and grading up to the maximum number of points for the most difficult class; convert number of letters of each class into points thus using the *point* as the unit of measurement.
10. Typing Orders—if machines are equipped with cyclometers use cyclometer points as the unit of measurement. The number of orders can seldom be used as a satisfactory unit unless the number of items per order is substantially uniform from day to day. Although it is not uncommon to find that the average number of items per order will remain constant when computed for long periods (from six months to a year) and for most businesses, it is nevertheless very unusual to find that the number of items does not vary materially during the day-to-day work. If, therefore, the number of orders is to be taken as the production unit, it is necessary to classify the orders in some manner as, for example, long, medium and short orders typed, based upon the number of items which should determine each classification. Another and very satisfactory method, although more difficult to tabulate, is to use the number of items typed as the production unit. If different kinds of orders for different types of products are involved, each kind having a substantially uniform number of items, then the number of each *kind* of order can be used as the unit.

Although a number of illustrations have been given, each type of work varies in the complexity involved in establishing the measuring unit and the

unit selected must, of necessity, be one which can be applied in the individual office under circumstances existing at the time of selection.

The purpose for which the work is being measured must likewise have careful consideration. If the purpose is for control of output then certain tolerances are desirable and exchangeable for increased ease of tabulation of the figures and greater simplicity in the measurement procedure. If, on the other hand, the purpose is not only for control of production, but also to provide a basis for paying the personnel on productivity, then extreme care must be used in the selection of the unit and all operations of the plan must reflect a high degree of accuracy.

Measurement of Quality—Treatment of Errors.—Heretofore we have discussed how to apply measurement to the quantity of work produced. Such application is in itself insufficient unless proper provision is made for the treatment of errors. It is obvious that only usable clerical production should be reflected in the figures. Workers should not be given credit for careless or unusable production. To do so will inevitably swell the production figures and lead to the reporting of wrong information concerning the volume of work completed or yet to be done. It is not good business to pay workers for producing unusable work or on any basis which reflects the re-doing of defective work in the production report where a "payment by production plan" is in effect. Measurement should therefore include both quantity and quality or, to put it another way, only work of acceptable quality should be reported as production.

DEFINING ACCEPTABLE QUALITY OF WORK.—To say that all office production, as represented either by the finished clerical product or by service rendered to customers, should be absolutely perfect may be a highly desirable objective. Such an objective is not only impossible of accomplishment because of the effect of the human element involved but it may also be impracticable from a cost viewpoint. We know, for example, that in machine shop practice and in other manufacturing operations certain tolerances in the quality of the product are allowable. These tolerances vary according to the purpose for which the finished product is to be used. Similar tolerances are just as applicable to clerical production and to certain office operations which contribute to it.

For certain office work a standard as near perfection as possible is required, as for example, where financial records are involved or where the errors would involve a financial loss to the company. In other cases the degree of perfection required should be set at the highest level which is consistent with the requirements of the particular operation, for the business as a whole, and at a clerical cost which the company can afford to pay. In some cases therefore it may be possible, by instituting certain control and checking operations in connection with the work, to attain perfection in the

final clerical product within the limits of from 23/100 to one-half of one percent. In other cases an acceptable margin of error on certain operations may run to between 5% to 10%. Inasmuch as all errors may not be, and frequently are not, the fault of the clerk, it will be found necessary under certain conditions to evaluate errors in order to apply measurement equitably on intervening operations, especially where it is advisable to measure work in process and before it becomes a finished product.

EVALUATION AND CLASSIFICATION OF ERRORS.—Investigation of clerical errors will show that they can be grouped under three major classifications based on causes :

1. Causes which are usually considered to be the fault of the clerk.
2. Causes which are usually considered to be only partly the fault of the clerk.
3. Causes usually attributed to faulty supervision or to inefficient management.

Examples of causes which may be considered the fault of the clerk :

Carelessness

Outside distractions both during and after office hours

Bad health, including physical disabilities, principally eyesight

Mind wandering

Stupidity

Lack of interest

Poor memory

Mistakes in judgment

Failure to follow instructions

Examples of causes which may be considered only partly the fault of the clerk :

Misinterpretation of instructions. This may be more the fault of supervision than of the clerk.

Lack of knowledge

Previous work incorrect where the same clerk did the work. Proper supervision should have prevented this reoccurrence.

Having to do work under unnecessary strain or pressure

Examples of causes which may be attributed to faulty supervision or inefficient management :

Too many interruptions and too many work changes

Conflicting or incorrect records

Not enough or too much work

Faulty routines or methods

Improper, inadequate or insufficient equipment
 Insufficient instructions or inadequate training
 Bad placement of the worker
 Bad working conditions

The above classifies errors by cause, but it is also necessary to classify errors by their effect upon the company. Based upon research studies covering 11,287,000 units of work involving 38 of the more common office operations and the analysis both as to cause and effect of 25,485 errors, after eliminating all errors made by beginners and careless workers, the following classification and weighting of errors as to effect was developed by the application of mathematical formulae:⁸

Major Errors, or those which cause the company a direct loss of money—evaluated weight	4 points
Important Errors, or those which cause extra and unnecessary clerical work but which do not result in a direct money loss—evaluated weight	2 points
Relatively Unimportant Errors, or those which cause neither a loss of money or time but which nevertheless should be discouraged—evaluated weight	1 point

The most significant thing to remember in evaluating errors is that the number of errors is of less importance than is the percentage of errors based upon the exposure, or number of possibilities, for errors to be made.

EVALUATING PRODUCTION, ERRORS, AND SALARY PAID.—To illustrate, consider the relative value of two clerks, A and B, each earning \$25 a week, and each producing 10,000 and 20,000 work units respectively, the production of clerk B therefore being double that of clerk A.

Both clerks A and B have the same number of error points, forty. Obviously, since both clerks earn the same salary, and since clerk B produces double the amount of work produced by clerk A, the cost per work unit produced by clerk B is one-half the cost of the work unit produced by clerk A. Thus, on the sole basis of evaluating production, clerk B should be considered to be twice as valuable to the company.

If, however, we examine the error ratios of the two clerks, we find that clerk A having produced 10,000 work units and having made 40 error points will have an error ratio of 4/10 or 4% as compared with clerk B who produced 20,000 work units with the same number of error points, giving clerk B an error ratio of only 2/10 or 2%, which is one-half the error ratio of clerk A.

According to the above illustration, clerk B is not only twice as valuable as clerk A, based upon her production record only, but she is also twice as valuable as clerk A based upon their respective error ratios. It will also be

⁸ From files of the late W. H. Leffingwell, Harold C. Pennicke, former Senior Associate—a special client research project.

apparent that the cost of reprocessing defective work units will be one-half the cost to the company for clerk B who had double the production, as for clerk A.

While the above may, at first impression, appear to be an extreme example, it is not unusual to find such radical variances in production for clerks with the same salary in offices where performance has not been measured either as to quantity or quality. Obviously, therefore, measurement of performance is as essential to the employee as it is to the management.

The Clerical-Minutes-per-Order Ratio as a Measuring Device.—In offices where the number of customers' orders received and handled determines to a large extent the amount of clerical work to be done—as it frequently does in the large manufacturing or mail-order companies—a simple device known as the "Clerical-Minutes-per-Order" (C.M.O.) ratio may be used as an over-all unit of measurement. Under certain other conditions it may also be used as the unit for measuring the work of individual departments regardless of whether all, or only part, of the work of such departments is devoted exclusively to the processing of orders.

As an over-all measuring device it is applied by multiplying the number of minutes worked by each member of the office staff each week by the number of persons on the staff, and then dividing the result by the number of orders handled during the week. The figure thus obtained is the C.M.O. ratio. To illustrate, an office working a 40-hour week would work 2,400 minutes for each employee on duty the full week. If there were 100 such employees a total of 240,000 minutes would have been worked. Assuming that 2,000 orders had been processed during the week, by dividing 240,000 minutes by the 2,000 orders would give a C.M.O. ratio of 120.

The same over-all method can be adapted to a departmental basis in the following manner. If it is desired to apply the ratio to the order department, or to any other individual department of the company; the order department we will assume, has 20 of the total of 100 employees who worked the same company standard week of 2,400 minutes per person. The total time worked for that week by the 20 employees of the order department was therefore $20 \times 2,400$, or 48,000 minutes. Dividing the 48,000 minutes by the 2,000 orders processed in the department, gives a clerical-minute-per-order ratio for that department of 24.

By comparing the ratios thus obtained on a daily, weekly or even hourly basis for each department, or for the company as a whole, a comparatively simple management control over clerical production can be established. For example, from an accumulation of such weekly statistics it is possible to compute the staff necessary in the order department, or similarly in other office departments, to handle any fluctuating volume of orders as shown in the table (Figure 145).

TABLE OF PERSONNEL AND PRODUCTION ESTIMATES			
Based upon no absences, 40 hours per week and Clerical-Minutes-per-Order Ratio of 24			
Staff Required	Clerical Minutes per Week Worked	Est. Weekly Max. Production	Est. Avg. Daily Production (5-day wk.)
21	50,400	2,100	420
20	48,000	2,000	400
19	45,600	1,900	380
18	43,200	1,800	360
17	40,800	1,700	340
16	38,400	1,600	320
15	36,000	1,500	300
14	33,600	1,400	280
13	31,200	1,300	260

Figure 145. Table of Personnel and Production Estimates

An hourly report of actual production of the department for a single day could appear as in Figure 146.

DAILY WORK RECORD—ORDER DEPARTMENT		
Hours of Day	Orders Completed	C.M.O. Ratio
8- 9	25	41
9-10	28	36.4
10-11	31	33
11-12	50	20.4
1- 2	42	24.3
2- 3	45	22.7
3- 4	50	20.4
4- 5	62	16.5
Total Orders.....333 C.M.O.....24.5 (for Day)		

Figure 146. Hourly Report of Departmental Production

Such a production analysis can be a very useful control mechanism if closely followed by the management. For example, it shows that production was unusually low during the first three hours of the morning when the personnel was least fatigued and therefore should have been producing at its highest rate of efficiency. If inquiry indicated that the production was low because orders had not reached the department in sufficient volume, then the routine should be checked on prior operations to determine the cause of delay. It also indicates that under proper conditions of flow, when suffi

cient volume was available the group produced at a C.M.O. ratio of 20.4 during two widely separated hours of the day against a standard ratio of 24. This would certainly indicate that the standard was easily attainable. Again, on the last hour of the day, at a time when theoretically the department staff was most fatigued and therefore should not be expected to produce at its highest production rate, the department established its highest rate for the day, showing a C.M.O. ratio of 16.5 which was approximately 145% of its standard.

The Clerical-Minutes-per-Order Ratio measures only group production and then only under the conditions enumerated. It is often used as a supplementary control mechanism when other methods of measuring individual production are required.

How to Handle Measurable versus Unmeasurable Work.—As has been previously stated, although the greater majority of office work can be measured it may not prove practicable to measure all of the various operations performed by each clerk during the course of the day's work. This may be especially true where a clerk may be performing a variety of dissimilar operations. In such instances work which can be measured should be measured. These operations should be designated as standardized work.

Other operations being performed by the clerk upon which no measurements are to be applied should be designated as unstandardized work.

A simple time record can be kept by the clerk showing her unstandardized operations and the time consumed by such work. Deducting the unstandardized time from the total available clerical time for the day will give the amount of time which the clerk devoted to the standardized or measurable production. Her efficiency on the measurable work can then be computed.

The Work Unit as a Measuring Device.—Another device for measuring clerical production is the "Work Unit," which is interpreted to mean the standard production for one hour on one operation. Thus, if the standard requires performance at the rate of 1,000 per hour, 1,000 is one work unit for that operation; 5,000 is five work units, etc. If another standard requires but 500 an hour then 500 would be the work unit for that operation and a production of 5,000 would be ten work units.

To determine the relative efficiency of the worker :

1. One hour's production at the standard rate equals one work unit.
2. The actual production divided by the standard production per hour, equals the number of work units produced. Thus, if 2,000 is produced on a job where the standard is 1,000 an hour, the production of 2,000 in one hour is two work units.
3. The number of work units produced, divided by the number of hours worked, or by the time units, equals the percentage of average

efficiency throughout that period. If, for example, the standard rate is 1,000 per hour and 2,000 is the production in two hours, the method of figuring would be:

$$\begin{array}{rcl} \text{Work Units Produced} & \dots\dots\dots & 2 \\ \text{Divided by Time Units} & \dots\dots\dots & 2 \end{array} \quad \text{equals } 1 \text{ or } 100\%$$

Another example:

$$\begin{array}{rcl} \text{Work Units Produced} & \dots\dots\dots & 1 \\ \text{Divided by Time Units} & \dots\dots\dots & 2 \end{array} \quad \text{equals } \frac{1}{2} \text{ or } 50\%$$

In order to eliminate as much figuring as possible, tables may be prepared for the different rates of production.

The Departmental Control Report.—In order for a report to become fully effective for control purposes it must bring together in one form and periodically, not less frequently than once each week, all the necessary information for quick inspection and analysis by the operating head of the department. The various sections and information contained in such a report which was developed for the policy issue division of a life insurance company are shown and explained below.

1. The first section of the report shows the quantity of applications received by days of the week, the number of applications each day which were entered for issue and later approved for issue as policies.

	Received	Entered	Approved
Mon.	101	101	47
Tues.	17	17	42
Wed.	28	28	46
Thurs.	31	31	44
Fri.	32	32	42

The above columns are then totaled and compared with the preceding week's report:

	Received	Entered	Approved
Total This Week	209	209	221
Total Last Week	214	214	201

2. The next section of the report shows the number of days elapsed since the receipt of the applications as determined when the policies were issued. It also contains the production report by days and for the week, and classifies the work according to its several kinds, as for example, New Policies Issued; Changes in Policies Issued; and, other cases which were found impossible of issue and so were sent to file either as Declined or as Not-Completed cases. Percentage by days elapsed for the issued business is also computed and compared with a similar record for the preceding week. This section of the report is as follows:

NUMBER OF DAYS ELAPSED SINCE RECEIPT OF APPLICATION

	Same Day	1	2	3	4	5 to 9	10 and over	Total New Pol. Issued	Total Changes Issued	Decl. or Filed
Mon.....	9	2	3	2	0	2	8	26	6	2
Tues.....	2	15	3	1	2	6	13	42	17	3
Wed.....	8	2	9	0	2	6	20	47	4	7
Thurs.....	0	5	3	5	2	9	14	38	6	8
Fri.....	7	5	3	3	10	6	27	61	6	14
Totals This Wk.....	26	29	21	11	16	29	82	214	39	34
% By Days.	12	14	9	5	8	14	38			
% Acc'l.										
This Wk..	12	26	35	40	48	62	100			
Last Wk..	5	19	32	44	49	61	100			

Number of this week's cases mailed.....86 which is 41% of total applications received.
 Last Week.....80 which is 37% of total applications received.

3. The next section of the report shows the total number of policies issued, total cases closed, and cases pending (not yet available or ready for issue) also, the number of unissued cases in the department (work which it might have done had time permitted) at the close of business on Friday.

	This Week	Last Week
Total Policies Issued.....	253	211
Total Cases Closed and Filed.....	287	231
Total Cases Pending.....	420	453
Total Approved Cases On Hand— Account'g Dept., 15; Issue Dept., 0..	15	11

4. The last section of the department control report shows computation of the clerical minutes worked, loss of time by absentees and finally, a comparison of the clerical minute per policy (order) ratio attained for the week as compared with the standard C.M.P. ratio set for the department:

PERSONNEL—The Minimum Staff Required for This Department is.....	7
Part Time Clerks (.O.) for total of	0 min.
Assigned Personnel (13) ; Standard Work Week for 13 clks.	28,665 "
Add Overtime (7 hrs.)	420 "
Total	29,085 "
Deduct Absence (56 hrs. 15 min.)	3,375 "
Net Working Time for the week	25,710 min.

PRODUCTION—

This Week's Standard Clerical Minutes per Policy Attained	101.6
Standard C.M.P. Ratio (based upon issuing 300 policies with 11 clks.)..	95.6
Operating Efficiency of the Department for this week	94.1%

The report also carries the names of the personnel who were absent and the amount of such absence by individual employee; also, the amount of overtime.

CHAPTER 22

COST CONTROL

Cost Control in the Office

Objectives and Comments.—The purposes of this brief paragraph are: (1) to remind the office executive that no matter what excuses were offered for neglecting cost control for the past several years they are no longer valid (The time has come when specialized attention must be focused upon this subject in order to produce an organization-wide cost consciousness and a group of techniques and practices that will effectively meet the needs.); (2) to point out that practically every chapter, topic, and paragraph in this book—although discussing principles and practices applicable in many fields—is, in effect, a discussion, directly or otherwise, of cost control. The fact that costs as such may not be mentioned in a chapter or topic is of little consequence. The point to be remembered is that the principles, methods, and techniques set forth are all basic in creating and operating an office along the most efficient lines.

In most concerns the office conducts a few major activities and a great many minor ones. In both instances, however, the variety and multiplicity of detail presents an extremely difficult and complex problem of office cost accounting, but at the same time provides an almost unlimited number and variety of sources from which waste may arise. Because of this condition, most concerns have concluded that detailed cost control techniques could not be installed throughout the office since it appeared likely that their cost would exceed their value. Moreover, these same concerns have concluded that since effective cost control over each activity and detail was impracticable, there was no reason for incurring the expense of installing and operating a detailed cost accounting system to record the costs of office operation. It goes without saying that it is not good practice to spend dollars to save pennies. Many executives have rejected completely the idea of cost accounting and control for the office on this basis alone. On the other hand, many executives have established by trial, the fact that office cost accounting, carried to the proper extent, is a very profitable activity. It is profitable because it provides a better basis for control of operations, it makes budgeting more accurate, it helps in the elimination of waste and it places in the hands of management many useful yardsticks for measuring individual, group and other types of performance and results.

Responsibility for Cost Control.—Although it is good practice to hold one or a group of individuals responsible for the installation and operation of the cost control program, the results will not be satisfactory unless the operation includes all personnel, and unless each individual is made to feel a sense of responsibility for the success of the program. Intelligent and willing cooperation on the part of all is essential. In order to secure this cooperation, all must be made to understand the nature and objectives of the program. Thus, at the very inception, the program must receive the full and active support of top management. Only then is it possible to begin the difficult task of educating the rank and file of workers and their supervisors concerning the program and their responsibilities in connection therewith. The methods used to aid understanding and arouse interest include conferences, bulletins, meetings, demonstrations, rewards for suggestions, etc. Once the program has been launched, the follow-up begins immediately and it employs these and many other methods in an effort to keep interest and accomplishment running high. It is well to remember that the program is a continuous activity. This fact can be kept before the employees by frequent progress and achievement reports.

The Tools Used.—Generally, the major elements of office expense will include labor, supervision, equipment, machinery, furniture, space, supplies and forms. Thus it can be readily seen that highly standardized tools would not always meet the specific needs. It is necessary, therefore, to shape the tools to meet the objectives. If waste prevention is to receive primary emphasis, the tools must be designed for prevention. They must be such that will insure the accuracy, suitability and economy of each process, procedure, piece of equipment, etc., before it is adopted or installed. If the emphasis is to be mainly on waste elimination, the tools must be such as will point out where waste exists. Thus, standards of performance, use, productivity, time, and of many other types will be needed as yardsticks against which actual performances may be measured to determine if accomplishments are equal to expectations. In the same manner, if major emphasis is to be placed directly on cost reduction, the tools must include standards showing what costs should be and actual figures showing what they are.

The Approach.—Prevention is the keynote of the program and the activity upon which most emphasis should be placed. Experience holds much justification for the conviction that once a practice or condition becomes woven into the pattern of action or accepted as a tradition, it requires a major operation to remove it. If wasteful practices or conditions can be prevented from becoming a part of daily procedure, time and money are saved with less effort and trouble than would be the case should an application of corrective measures be necessary. Prevention requires effective organization, trained and thorough investigation, and such definite control that no

step will be taken until it has been determined that it is the correct one. For example: furniture, machines, equipment or supplies should not be purchased until the need has been clearly established and the selection determined to be the most satisfactory to meet the need. Similarly, forms, procedures and routines should not be introduced or changed until all the facts concerning their need and suitability have been gathered and analyzed and a decision made.

The clerical demands of a business are not static. All businesses are subject to an almost constant series of economic, competitive and other pressures which make changes necessary. Moreover, it is not a trait of human nature for most people to follow orders, instructions or methods implicitly for a long period of time. Sooner or later they become careless or their own ingenuity asserts itself and causes changes from established standards. Sometimes these changes represent improvement and sometimes they do not. In any event, the fact that people possess this trait and the fact that business needs change, make it desirable that a cost control program also provide for the introduction of corrective measures when necessary.

Since it cannot be known when these unauthorized changes, adjustments and innovations will occur, and since it is not usually satisfactory to rely upon supervision to discover and correct these variations, it is important that the cost control program provide for periodic investigation and analysis of all activities in order that corrective measures may be applied where needed. In succeeding paragraphs of this chapter the basic tools of a cost control program are explained and their use illustrated.

Standard Costs

Why Should Cost Control Be Considered for Office Work?—The prime purpose of cost control is to justify income and expense items in such detail as may be required for intelligent management purposes.

A standard cost system covering clerical activities depicts the office work in terms of work units produced and the cost thereof. It truly presents the office manager as a production man, in charge of the output of innumerable items or products, which most fair-minded executives will admit are of vital importance to the operation of the business. This, we believe, has a twofold significance. Not only does a cost control system eliminate that suspicious attitude on the part of the other executives in regard to office production but it also emphasizes, with the office manager and his staff, the fact that they are in reality operating a production department—a viewpoint so frequently forgotten but of vital importance for the intelligent direction of the clerical efforts.

Furthermore, a cost control plan provides, as a substitute for theoretical accounting distribution, which is always open to argument, a method of

allocating charges on the basis of office products, actually produced, for various departments.

A plan of cost control through standard costs will serve as an important aid to accomplish the following :

1. Organizing clerical work for most effective operations.
2. Evaluating the importance of clerical tasks and thus confining office work to tasks that are essential.
3. Bringing about economical performance.
4. Incorporating clerical costs in a factual way for the shaping of business policies.
5. Accounting and budgeting of clerical costs for effective administrative guidance.
6. Establishing effective control of clerical costs in the hands of the control executive.

What Is Standard Cost and How Does It Operate?—During the last twenty years, the concept of standard cost has rapidly been gaining ground in practically every type of industry. The complete conversion from older forms of cost accounting has by no means been accomplished, but the progress has been gratifying and sufficiently convincing to prove the value of standard costs as a management tool.

A cost system, in the old sense of the word, provided primarily a mechanism for gathering, classifying and recording costs as incurred. This, however, is not sufficient for control. Control implies some foreknowledge of what should happen in addition to manipulation and a method for finding out what did happen. Control also involves continuous efforts to collect, systematically, causes for differences between what was expected and what actually took place, for three reasons :

1. To take full advantage of those circumstances that bring about a better showing than was originally expected.
2. To prevent those things from happening that result in an unfavorable showing.
3. To adjust and improve upon the technique of predetermining what should happen.

As a standard cost plan involves all these functions it is, in the true sense of the word, a system of cost control. As it must, inevitably, be based on research into cause and effect, it represents a scientific approach to the cost problem.

As the term "standard cost" indicates, it represents a cost system based on standards. It is made up of standards expressed in terms of cost. If a standard of 100 orders a day on an operation has been set and the wage scale is \$4 a day, the standard labor cost for that operation is 4¢.

If half an hour a day is required for the care of the machine used for that operation, the standard for that operation becomes 25¢ a day plus 3.75¢ per unit of work handled.

If the work arrives at this operation in batches containing a varying number of units of work, and it requires from the operator 6 minutes a batch to enter batch numbers in a record, etc., and an average of 5 batches are handled per day, the standard becomes 25¢ a day plus 5¢ for each batch handled plus 3.5¢ per unit of work handled.

If the number of units in the batch is always 20, or if the average remains constantly at 20, the standard can be expressed either as:

25¢ a day, plus 3.75¢ per order handled, or

25¢ a day, plus 75¢ for each completed batch.

Assuming, for the sake of simplicity, that a standard of 4¢ per unit is being used even though it is known that half an hour a day must be used for preparatory tasks and 6 minutes for entering each batch, what are some of the results?

As long as an operator hits the standard of 100 a day, no differences occur. If she reaches 125 a day instead of 100, it would appear that the approximate value of her performance would be \$5.00 for the day. With more accurate standards it would figure out to \$4.94. In other words, for performance above standard the comparison would be slightly more favorable, while, for performance below standard, the comparison would be less favorable. Whether or not the difference in accuracy is worth the extra work connected with the computation based on a more complicated formula is typical of a decision which the office manager must make in regard to practically every operation standard established.

It should be observed that the number of elements used in computing a standard affects the work required to provide the information needed for this computation. The simplest procedure in the example would naturally be to provide just a count of the number of batches handled. In one of the cases, both the number of batches and the number of units of work (orders) were needed, which would obviously require more work to obtain, to report and to compute.

To carry the example one step further—assume that $\frac{1}{2}$ hour a day must still be allowed for preliminary work, but that actually two different types of orders are passed through the operation, requiring different amounts of work. Assuming further that class A orders can be handled at the rate of 75 a day, and class B at 125 a day and that batches are of uniform size, this would mean that the standard direct labor cost for each class A order would be 5¢ and each class B order would be 3¢.

As long as the number of A and B orders are the same each day and the average standard production should be 100 a day, the average standard of 4¢

can be used to handle the combined operation. If, however, the relative amount of A's and B's will vary from day to day, it might be necessary to establish one standard for each class to obtain greater accuracy. If so, there will be an increase in the counting and reporting required, as well as the time required for computing the standard for the day's performance. This is another type of decision which will be required of the office manager in connection with the setting of standards.

If the cost standard is a straight 4¢ per unit, and the operator's time is devoted wholly to this operation, the only information needed is a time sheet entry showing 8 hours of operation, and the number handled. If, in this period, one operator at a wage rate of 50¢ per hour produces 115 instead of a standard 100, the standard cost is \$4.60, while the actual cost is \$4.00, or a gain of 60¢. This last figure is called a "variance". The result can be shown like this:

Work at standard	\$4.60 (115 orders at 4¢)
Variance .....	.60 (15 orders at 4¢)
Net actual cost	<u>\$4.00</u> (8 hrs. at 50¢)

If instead of 50¢ per hour, or standard for this operation, the operator is getting 55¢ per hour, the standard cost would show up as \$4.60, while the actual cost would be \$4.40, or a variance gain of 20¢. This can be segregated out in the following way, if desired:

Work at standard	\$4.60 (115 orders at 4¢)
Wage rate variance, plus .....	.40 (or 8 hrs. at 5¢)
Prod. variance, minus .....	.60 (or 15 orders at 4¢)
Net direct labor cost	<u>\$4.40</u> (8 hrs. at 55¢)

While no more time reporting is required by the clerk to obtain this segregation, it naturally means some extra work on the part of the cost clerk. Whether the resultant division of cost elements is worth while or not must be decided by the office manager.

If it has been decided to use as standards 5¢ and 3¢ respectively for A and B orders, and the 55¢ an hour clerk reports 50 A orders and 60 B orders for 8 hours, the computation would show as follows:

Work at standard	\$4.30 (50 × 5) plus (60 × 3) equals \$4.30
Wage variance, plus .....	.40 (8 hrs. at 5¢)
Production variance, minus .....	.30 (10 orders at 3¢)
Net cost	<u>\$4.40</u> (8 hrs. at 55¢)

If the clerk operator in addition to the above production would report 4 hours on Class A orders and 4 hours on Class B orders, the following computation can be made:

Work at standard	\$4.30	(same as above)
Wage variance, plus .....	.40	(same as above)
Production variance A minus .....	.50	(4 × 50) — (50 × 5) equals — .50
B plus .....	.20	(4 × 50) — (60 × 3) equals + .20
Net cost	\$4.40	(8 hrs. at 55¢)

This would show, for instance, that the net loss to the company for the day was 10¢. It is explained by the fact that the operator is getting 5¢ an hour more than standard scale for the operation. While she made a fair showing on Class A orders, or a gain on the standard basis of 50¢, she lost 20¢ in handling B orders.

Naturally, in order to obtain the basic figures, it is necessary for the operator to show on her time sheet the various periods devoted to A and B orders, and the number of entries required for this will depend on how frequently she will change during the day from one type of order to another. For each time entry the cost clerk has to figure the elapsed hours. The production variance requires two computations, instead of one as in the previous example.

Suppose that our operator reported exactly the same production as in the previous example, but she was working 10 hours a day with 2 hours at over-time rate, earning a total of \$6.05 for the day instead of \$4.40. Assume that, while working on A and B orders, she devoted one hour off and on to teaching an apprentice, a half hour waiting for work to come through from other departments, and a half hour waiting for her machine to be repaired by a mechanic. The work produced was the same as in the previous example.

The computation could show as follows:

Work at standard	\$4.30	(Same as previous example)
Wage variance:		
Base rate, plus .....	.50	(10 hrs. at 5¢)
Overtime, plus .....	.55	(1 hr. at 55¢)
Delay variance:		
Instruction, plus .....	.50	(1 hr. at 50¢)
Machine repair, plus .....	.25	(½ hr. at 50¢)
Wait for work, plus .....	.25	(½ hr. at 50¢)
Production variance:		
Class A, minus .....	.50	(same as previous example)
Class B, plus .....	.20	(same as previous example)
Net cost	\$6.05	(11 hrs. at 55¢)

This shows that the excess cost to the company for the day was \$1.75. The computation shows in complete detail the causes for this excess cost and in such a way as to make it possible to fix responsibility for them.

Here again, in order to obtain this picture, it requires further time separation on the part of the operator on her time sheet, and more computation work for the cost clerk. While in actual practice, of course, the cost

clerk does not attempt to show a breakdown like this for each individual operator, he is more apt to make summaries in this manner for variances for the department as a whole, or for all employees on each operation.

If weekly, rather than daily, cost figures are desired, these cost conversions can be made once a week instead of daily.

Here again, it is apparent that further decisions are called for by the office manager—

1. How far is it desirable to go in segregating causes for extra costs?
2. How often should cost reports be submitted?

It has been already pointed out that a decision must be made on the question—

How far should standards be subdivided in the interest of accuracy?

An attempt has been made to show that there is practically no limit to the breakdowns of reasons for cost variations by means of a standard cost system and that these breakdowns can be obtained in an operating executive's language. The fact has been stressed that the more detailed the cost breakdown—the more frequent the reports, the more work is required to keep time sheets, to get production counts, and finally to make analyses of time and production reports and make the cost computation.

Unfortunately, space does not permit further examples to illustrate standard cost principles. A simple illustration covering direct wage costs was chosen. Clerical cost includes many other types of wage costs, as well as other kinds of costs, for instance, supplies, rent, light, heat, taxes, depreciation, etc. In order to obtain a complete standard cost coverage, each item has to be analyzed separately. The purpose of such an analysis is obviously to determine what causes could bring about an increase or decrease in these costs. If no causes are found the item is a fixed cost, and the standard is established as so many dollars per day, week, month or year, depending on how it is to be used. On another element a certain portion of cost is fixed and another portion varies with some factor such as number of orders, number of employees, number of factory orders, etc. In this case the standard is expressed as a certain fixed allowance, plus an allowance for each base factor which causes it to vary. This type of item is called semi-fixed. Another item might vary directly with some one of the factors mentioned. In this case the standard is expressed as so much for each base unit and the type of cost item is called a variable.

So far standard costs have been examined primarily as a means of operation control. From the foregoing, it should not be difficult to visualize the type of statement that could be constructed to show standard and actual costs and the computed variances for the cost items involved in the

stenographic section, the central files, the order records section. (See Figure 147.)

ORDER HANDLING SECTION						
	Month of March			Year to Date		
	Budget	Actual	Over Under	Budget	Actual	Over Under
Payroll:						
At Standard.....	\$5,600	\$5,600		\$17,000	\$17,000	
Wage Variance.....		50			1,000	
Delay Variance.....		75			500	
Production Variance.....		125			250	
Total.....	5,600	5,500	100	17,000	18,250	\$1,250
Postage, Telephone and Telegraph..	100	100	—	250	300	50
Supplies.....	650	600	50	1,700	1,800	100
Repairs and Maintenance.....	25	75	50	250	300	50
Sundry Expense.....	25	25	—	100	150	50
Total.....	\$6,400	\$6,300	\$100	\$19,300	\$20,800	\$1,500
Supervisory Salaries.....	633	600	33	1,896	1,800	96
Personnel Service.....	267	267	—	800	800	—
Rent, Light, Heat and Power.....	267	258	9	804	775	29
Depreciation, Income and Taxes....	333	333	—	1,000	1,000	—
Total.....	\$1,500	\$1,458	\$ 42	\$ 4,500	\$ 4,375	\$ 125
Grand Total.....	\$7,900	\$7,758	\$142	\$23,800	\$25,175	\$1,375

Figure 147. Example of Standard Cost Statement—Order Handling Section

Thus far an effort has been made to indicate the importance and advantages of cost controls as a part of office management; to demonstrate what standard cost is and to show how it can be applied to clerical activities. An effort has also been made to indicate how it can be moulded to fit varying conditions and to point out some of the important factors which affect the efforts required to maintain it as a system.

How Can Standards Be Established?—By now it is no doubt clear that standard costs are built on standards. For any operating condition for which a standard, expressed in time or inches or pounds, can be or has been established, this standard usually can also be expressed in terms of dollars and thus the basis for a standard cost is established.

Standards to be used as a basis for a Standard Cost System can be established in various ways.

THE ENGINEERED STANDARD.—To establish scientifically correct standards based on time or micromotion studies or other types of engineering analysis to cover all operations and all the cost elements in an office is quite

a task. It involves the same sort of thing that has been repeatedly discussed in connection with the setting of performance standards. From a practical standpoint the efforts expended on such an undertaking must be adjusted to the results which can be obtained from them, but in most offices insufficient attention has been given to this subject.

This type of standard—the “engineered standard”—is the perfect standard.

THE HISTORICAL STANDARD.—The historical type is the one which is established on the basis of recorded past experience. Naturally, such an analysis is limited to such a breakdown as may be contained in the records of past performance, and does by necessity contain good and bad performances, controllable and non-controllable delays, etc. As a standard should represent a performance under well-controlled conditions and represent what may be termed satisfactory, or good, performance, it is necessary to note that historical standards are usually lower than engineered standards and do not, therefore, call for improvement over past accomplishment. Any arbitrary improvement of historical averages brings the resultant standards into the class of estimates even though they are based on a more solid foundation.

THE ESTIMATED STANDARD.—The estimated standard is just what the name implies—an estimate by someone supposed to know, usually the office manager and his division heads. It is resorted to when engineered standards cannot be afforded and when a satisfactory basis for setting historical standards is not available. It is obviously the least desirable of the mentioned types.

The extent to which to carry the establishment of engineered standards and to what degree historical or estimated standards should be made to suffice, is subject to practical and experienced judgment in each case.

Standards which have been worked into a system of standard costs can be moulded to fit the cost control problem of any type, size, and kind of an office. Like any other tool, however, such a procedure must be built to fit the needs of the user.

What Companies Should Consider Standard Cost Control of Clerical Work?—From the viewpoint of top management, the following observations might be made regarding the basic value of standard cost controls.

In business operating on a narrow margin, in which every expenditure must be carefully justified, control of all cost items, including clerical costs, is essential.

Furthermore, the greater the proportion of clerical cost to the total cost of the product or service sold, the more essential it is to have a good control of clerical costs.

Likewise, the greater the variation between clerical cost on otherwise similar transactions, the greater the need for an accurate cost control.

Some of these points are illustrated in the following examples:

1. Insurance companies. With the constantly decreasing return from investments, the control of administrative and clerical cost is becoming increasingly important. The complete understanding of the exact costs in handling each type of policy or loan, together with strict economy in these items, is more than ever a timely subject.
2. Banks. A very similar condition exists in connection with banks.
3. Mail order houses. With the narrowing margins, the ability to analyze the handling costs of individual orders or individual customers or of types of orders or types of customers is of vital importance.
4. Publications. The intelligent direction of circulation sales efforts depends in no small degree on the accuracy of the knowledge of costs as applied to different types of orders. Subscriptions are handled in big quantities and usually the net margin for handling cost is very limited.
5. Department stores, and large retail establishments. Clerical cost is an important part of an analysis of costs by specific lines of merchandise, departments or customers.
6. Job shops making products to customer specifications. Many times an analysis of the office costs of an order prior to reaching the factory has shown that the office costs are greater than the margin available for their absorption. The ability to anticipate what this cost will be is invaluable at the time the estimate is prepared.

These are just a few of the cases where true clerical cost control, based on standard cost principles, is of importance to the basic price and sales policies of a company, and cases where such control is vital to the very existence of the enterprise.

Budgets

Budgets in Management Control.—Many texts on the subject of budgeting go into considerable detail explaining the differences between forecasts and budgets. The treatment here will be concise and will recognize that there is a difference but the extent to which that difference has influence on the reader's thinking concerning budgets is of no material importance from a practical standpoint. Budgets are finished products—they are formal programs of future operations and anticipated results. Budgets result from forward thinking and planning. Forecasts are predictions of operating details upon which budgets are based. Forecasting is a process of providing the detail (i.e., sales forecasts; manufacturing forecasts; cost and expense

forecasts) which supports the formal results, namely budgets. The important point is that forecasts and budgets deal with the future. If the forecasts are carefully prepared and are realistic in conception, the final budget will indicate the future results—from this, two courses of action are available: (1) corrective action can be taken and plans can be formulated to prevent (or at least reduce) unfavorable results as far as it is possible, or (2) plans can be made to insure the fulfillment of the future program if the results are indicated to be favorable. In either case, control is possible for the budget establishes a base by which actual operations can be measured and by which deviations or variations can be appraised.

A control report is any report that presents information in such a way that corrective action, if required, can be taken within the time limits imposed by the operation. The actual development of forecasts and their resultant budgets is not in itself the exercise of control. Control comes from the use of budgets—analysis, comparison, correction and planning.

COORDINATION OF SALES AND PRODUCTION PROGRAMS.—There can be no balanced operation unless the sales and production programs are coordinated.

SALES FORECAST				FORM			
Detail	Price Used for Period	January		December		Total	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
<u>Sales by Products</u> (Detail)							
Total Sales							
<u>Cost of Sales by Products</u> (Detail)							
Total Cost of Sales							
Net Operating Profit							
Detail of Operating Expenses Detail and List by Variable and Fixed Classification							
Total Operating Expenses							

Figure 148. Sales Forecast Form

The usual procedure is for the sales department to prepare a sales forecast (Figure 148) which will include the following items:

1. Sales in units of sale (by kind of product and area)
2. Estimated sales price either based on an extension of present prices or the forecast of price changes

This forecast of sales will indicate what the sales department wants to sell and the quantities it *thinks* it can sell. This will probably result in a *sales quota* record after it has been coordinated with production (or manufacture).

The manufacturing department will prepare an operating program which will include the following items:

1. Items to be manufactured
2. Costs of manufacture by class of products
 - (a) Fixed costs
 - (b) Variable costs
3. Other expenses

Before the formal programs are established, the sales and manufacturing forecasts should be balanced and adjusted so that lowest costs and highest profit items are planned.

THE OFFICE AND THE BUDGET.—Ordinarily, in the larger concerns, the office manager has little to do in the preparation of the operating budget, inasmuch as a budget executive is usually charged with the responsibility. However, the office manager has considerable interest in the budget and the forecast detail supporting the budget. The volume of paper work to be processed in the office cannot be estimated until the operation departments have made forecasts of their schedules. The sales department furnishes such information as:

1. Analysis of the sales forecast in order to indicate the estimated volume of customers' orders.
 - (a) Sales increase may arise through increased sales to present customers by increasing their units ordered per invoice. This does not result in increased paper work.
 - (b) Sales increase may arise through extension of territories and procurement of additional customers. This will increase the paper work.
2. Contemplated or suggested changes in customers' order routine, originating as a result of better sales analysis and control, should be explored and the possible effect on clerical activities should be analyzed.
3. Changes in invoice design resulting from suggestions originating in the advertising division should be analyzed and the effect on clerical operations appraised. Printing cost changes should also be estimated.

The manufacturing department furnishes such information as:

1. Extent of purchasing department activities in procuring items required in the plant. This may involve additional orders, more frequent orders, and acceleration of purchasing department routine.

2. Extent to which back ordering (on customers' orders) will be encountered due to plant's inability to produce to stock and inability to procure sufficient materials to enable full-scale production. This will affect clerical operations.
3. Changes in inventory control methods, material requisitions, and other collateral clerical operations.

Preparation of Office Operating Budget.—From the analysis of the sales and manufacturing forecasts, with emphasis on the effect that the forecasts will have on clerical operations and paper work, the office manager is in a position to forecast the office operating detail.

CLERICAL PAYROLL.—The clerical payroll as forecast for the future will involve four major factors. The first will be the permanent clerical staff—the irreducible minimum of clerical personnel. The permanent staff will include the key personnel and those upon which the clerical operations are built. The second factor will be the variable clerical payroll—those who have been or will be hired in order to meet anticipated volume and who will be laid off should volume be reduced for a long period of time.

The third factor includes a forecast of salary increases which may be given during the forecast period and which results from upgrading, other promotions, and increases in the basic rates.¹ This is a statistical analysis of potential salary increases to specified personnel and the estimate will be based on an over-all analysis of personnel.

The fourth factor includes the estimate of supervisory payroll. The changes in the supervisory payroll, within the forecast period, would be estimated.

The analysis of these factors and those listed below is illustrated by Figure 149.

ESTIMATION OF OTHER OFFICE EXPENSES.—Inasmuch as the office manager is charged with the responsibility for providing adequate office services, he should be charged with the responsibility for preparing and administering the budget covering office costs. Payroll costs have been treated in the preceding paragraphs. There are other office expenses such as the cost of :

1. Maintenance of office furniture, equipment, and machines
2. Stationery, supplies and printing
3. Mailing, postage, etc.
4. Telephone services and communication expense
5. Employee services
6. Light and janitor services and other miscellaneous items
7. Employee training

¹ Harry L. Wylie, "Realistic Salary Administration," *The Office*, Vol. 22, No. 6, December 1945, pp. 40-48.

Control over office expenses is not effective unless there is a realization of their importance. Effective control is possible only after analysis. The budget is a control device because through budget preparation (forecasting) with the resulting analysis of the items of income and the items of expense, the relation of expense income is brought into bold relief—the results of future operations can be guaranteed by insuring the fulfillment of a planned program of sales with an “eye” to the expense side of the ledger. When

ANALYSIS OF OFFICE EXPENSES						
Detail of Office Expenses	January	February	March	November	December	Total
1. Clerical Payroll - Min. Staff						
2. Clerical Payroll - Variable Staff						
3. Clerical Payroll - Salary Adjustments						
4. Supervision						
5. Employees' Service and Welfare						
6. Maintenance of Office Equipment	(Support by Detail)					
7. Stationery and Supplies						
8. Mailing and Messenger						
9. Telephone, Telegraph, etc.						
10. Dues, Memberships	(Support by Detail)					
11. Traveling Expenses						
12. Subscriptions, Books, Magazines	(Support by Detail)					
13. Rent, Light and Service						
14. Donations	(Support by Detail)					
15. Other (List)						
Total Office Expenses						

Figure 149. Analysis of Office Expenses Form

expenses increase out of proportion to sales, comparison of actual results with anticipated results (in detail) will emphasize the variation. The emphasis will be more pointed through budget comparison than by a month-to-month comparison of actual expenses because the budget is in reality a standard pattern of future operations and comparison discloses deviations from that standard.

Budget Must Be Flexible.—If the budget is to serve its purpose of control it should be flexible. It should be adjusted and revised whenever there is a change in the basic conditions upon which the budget has been predicated. It is often said by those who have not thoroughly explored modern budget procedures that budgeting acts as a strait jacket into which

are forced the actual operations in order to make them conform. There should be nothing of the "straitjacket philosophy" in budgeting practices. As it has been pointed out in previous comments, the budget serves as a pattern for measuring future operations—a standard by which operations are appraised. Deviations, whether they are favorable or unfavorable should be thoroughly analyzed and if corrective action is necessary it can be taken in order to prevent the recurrence of an unfavorable operation.

When conditions change (such as price change, change in cost, expansion or contraction of sales, change in procedure, etc.) from the basis upon which the budget was developed the budget is revised to reflect the change—here again the element of control can be observed. If the change is such that operations are materially affected, the amount of the adverse effect can be measured and remedial action taken to cushion the change. The budget should be kept currently revised so that it reflects the extension or projection of current conditions into future operations.

The Cash Budget.—Budgets fall into two main classes—the operating budget and the cash budget. (See Figure 150.) Control includes the forecast of the cash income and cash expenditures so that cash deficiencies can be estimated (and corrected) or cash available for purposes of the enterprise can be determined.

The office manager is charged with the responsibility of providing office services. He has an interest in and makes a contribution to the cash forecast inasmuch as he controls the expenditures for office equipment, machines and furniture. Control contemplates the orderly and thorough analysis of the equipment, scheduling the equipment for trade-in, and the expansion of mechanical equipment in keeping with the office operating program. This is the office manager's cash forecast for capital expenditures. The analysis of office equipment also includes the forecast of maintenance expense which goes into the operating budget.

Considerable space could be given to the consideration of the cash budget and the importance of adequate financing. The cash budget will reflect on office operations. If, for example, cash is required for the expansion of accounts receivable during a specific period of the year, it is obvious that during that period there will be an increase in customers' orders handled and an acceleration in office operations. This furnishes a clue to peak production periods as well as plans for their solution. Again—if the cash available for capital expenditures permits the expansion or change in application of mechanical energy to office operations, there may be a change in the clerical payroll. The reverse would be true—i.e., if capital expenditures are curtailed, clerical payroll and equipment maintenance expense would be affected. Each item is related to another and influenced by changes in those items.

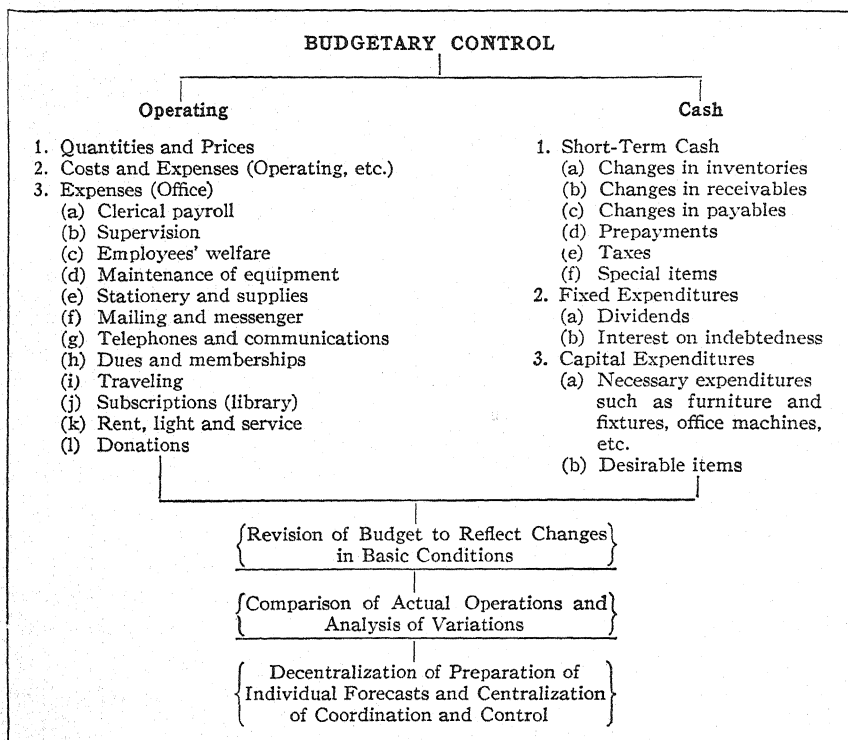


Figure 150. Budgetary Control

The office manager figures prominently in estimating and controlling of office expenses; the office operations will be influenced by the operating programs and their requirement for office services.

With the completion of the cash budget, all budgets should be summarized for final analysis before approval. A typical summary form is shown in Figure 151.

The Budget Period.—The budget period varies in actual practice and among companies but throughout the various plans there seems to be the common effort of forecasting for as long a period in the future as seems reasonable for accurate prediction. This common period is usually one year.

Ordinarily, companies will forecast in December of each year, for the following year and prepare their budgets for one year in advance. From there on, their practices will vary. One group will reforecast for the remaining months of the year, every quarter; thus they bring their estimates up to date every three months. In the interim period, the budget is revised whenever necessary.

BUDGET SUMMARY FORM						
	January	February	March	November	December	Total
Sales in Quantities (Detail on Separate Page)						
Price Used: \$						
Gross Income: \$						
Costs of Sales (Detail on Separate Page)						
Net Operating Profit						
Operating Expenses (Detail on Separate Page)						
Office Expenses (Detail on Separate Page)						
Net Income Before Depreciation						
Depreciation						
Net Surplus Income						
Cash Budget:						
Net Surplus Income						
Add Back Depreciation						
(Inc.) Dec. in Accts. Rec.						
(Inc.) Dec. in Inventories						
Inc. (Dec.) in Accts. Payable						
(Inc.) Dec. in Deferred Items						
Inc. (Dec.) in Accrued Items						
Deduct Dividends Paid						
Deduct Capital Expenditures						
Cash Available or (Required)						
From Operations						

Form 151. Budget Summary Form

Example of Periodic Budgeting:

1. In December of current year—forecast for 12 months of the following year.
2. Major revisions—
 - (a) In March—reforecast for April through December.
 - (b) In June—reforecast for July through December.
 - (c) In September—reforecast for October through December.
3. Interim revisions made whenever necessary, covering balance of year.

Another group will forecast in December for the following year but will operate a continuous budget by detailed bi-monthly estimates, each for six months in advance. Thus the over-all yearly budget is revised six times per year on a formal basis and is revised informally during the interim period whenever necessary.

Example of Continuous or Progressive Budget:

1. In December of current year—forecast for 12 months of the following year.

2. Major revisions—
 - (a) In January—forecast for February through July.
 - (b) In March—forecast for April through September.
 - (c) In May—forecast for June through November.
 - (d) In July—forecast for August through January.
 - (e) In September—forecast for October through March.
 - (f) In November—forecast for December through May.
3. Interim revisions covering the current budget made whenever necessary.
4. The annual budget made in December of each year is brought into balance with the bi-monthly budgets. Pending the new annual budget which is made in December, the bi-monthly progressive budgets establish an operating program for the beginning months of the year. This works out very well in practice and develops in an organization the practice of progressive thinking.

Use of Budgets.—Control depends on the use which is made of the budgets after their development. Some companies actually set up control accounts as part of their budget and accounting procedures and clear all expenses and expenditures through these accounts. Others use the budget as a yardstick to measure actual operations. It matters little which of these philosophies is used provided the following conditions are met:

1. Sales are analyzed and the effects on office operations are appraised.
2. Past experiences as related to expenses are analyzed in predicting future expenses as related to proposed operations.
3. Comparison of budgeted operations and expenditures with actual operations and expenditures and analysis of variations.
4. Current revision of the budget to meet changing conditions with an analysis of the effect of the revisions.
5. Coordination of operating plans with office operations.
6. Fixed responsibility for coordination and interpretation of budgets in central authority with centralized responsibility for preparation, comparison and explanation of detailed forecasts.

CHAPTER 23

AIDS TO CONTROL—REPORTS AND PUBLICATIONS

Control Reports for Office Executives

What is Control?.—The term control as applied to business has several possible definitions, depending upon the scope of management activities being considered.

In the broadest administrative sense, control involves the exercise of a directing influence to obtain the best possible continuing results in manufacturing and selling a product or service that contributes directly or indirectly to a better standard of living; at a price which will bring public acceptance and permit payment of the highest possible wage to labor and a fair return to the owners of the enterprise.

Narrowing the definition to the office viewpoint, control is defined as the direction and usage of human energies and human resources in such a manner as to produce when required as much service as is possible within a given period of time, of a desired quality, and at the least possible cost.

Perfect control in business is seldom achieved. Constant effort should be made to improve the quality of control but the fact that perfection is only an ideal should not be lost sight of.

What Effective Control Involves.—From the viewpoint of the office executive as well as the other functionaries in a business organization, effective control involves—

A. Planning

1. Clear definition of objectives
2. Determination of the best possible methods to obtain objectives
3. Determination of standards of performance and the kind and volume of personnel, material and equipment required
4. Determination of time and location at which each operation will take place and the correlation of operations of each unit of the organization

B. Direction

1. Application of the plans
2. Issuance of orders

C. Follow-up

1. Observing progress and results
2. Modifying or changing original plans or initial orders as conditions may require

Difficulties.—In the larger and more highly integrated companies of to-day, effective control is difficult to establish and maintain because :

1. The lack of direct contacts between top executives and the worker, and the necessary employment of such intermediates as division heads, department heads, supervisors and foremen, do not readily permit of a clear understanding on the part of the worker as to what, how and why the work is to be done.
2. Many and varied jobs with their numerous detailed and specialized operations, perhaps performed in widely separated locations, require different periods of time for completion.
3. Employee interest often declines due to the apparent deadening effect of repetitive operations.

These difficulties and other factors require that management be supplied with suitable control media in order that each phase of administration may be adequately carried out. The part that the office executive plays in reducing these difficulties may be likened to the part played by the instrument panel of a modern airplane.

Reports as an Aid to Control.—To the layman, the instrument panel of today's mammoth airliner is almost a mystic maze, but to the expert pilot with his training and experience, the dials on that board supply information that will aid him in making successful flights. When the efficiency of a vital part of the plane is low or failure occurs, he is instantly informed and is in a position to decide what changes in his course or other steps must be taken to safeguard his passengers and ship.

The changing conditions the pilot faces, the decisions he must make, and the responsibilities he carries are Lilliputian when compared to their counterparts in today's business enterprises. However, as the pilot is aided in controlling his ship by the plane's instrument panel, so is the executive aided in managing his company's business through the medium of reports and other control devices furnished by the office. These instruments assist the executive in :

1. Formulating new or revised policies and plans.
2. Issuing orders and instructions.
3. Observing and analyzing current and final results.

Characteristics of a Good Report.—A report to be effective should :

1. Supply information for a specific purpose. Too frequently the main purpose of a report is gradually submerged by the introduction of other interesting but unessential data.

2. Present the required information in such a manner as to permit of an easy interpretation by its recipient. The user of a report is the office executive's customer, and the product should be prepared and presented with this thought in mind. A poorly designed report not only unnecessarily consumes the time of the receiver, but lends itself to possible misinterpretation.

3. Be accurate to the degree desired. Absolute accuracy, a fetish to some office executives, is not always essential to the purposes of the user. The degree of accuracy needed for each report should be ascertained so that time and effort will not be unnecessarily expended.

4. Be submitted on time. Every effort should be made to deliver a report on time because a report decreases in its worth and usefulness as lateness increases until, in many cases, the cost of preparation is not only wasted but, more important, the opportunity for executive action has been lost.

5. Cost less to prepare than its value in use. The office executive is rarely in a position to judge the worth to the users of specific reports, but he can ascertain their cost of preparation and use this as a basis for discussion to bring about changes and eliminations.

Visual Presentation.—From a business point of view, visual presentation is a pictorial method of presenting facts previously set forth as a listed or tabulated mass of cold figures.

By means of graphs involving the use of lines, bars, curves, areas, volumes, etc., there is an appeal to the mind through the eye.

HOW ARE GRAPHS MADE?—Before transmitting data to a graphic chart it is necessary to establish a distance or space on the particular type of chart used as being equal to a unit of the data to be presented pictorially. By determining the number of graduations needed to represent a total figure or all units of the data to be plotted, it is possible to spot a point, or draw the size of the area which may be compared relatively with other similarly illustrated figures.

LIMITATIONS OF GRAPHS.—There are certain limits and difficulties that need to be recognized in attempting to use this visual method of reporting :

1. Because of the use of improper scales, there results either too large a chart or if a reasonable size is used, the variations for comparative purposes do not stand out clearly.
2. The designer has an inadequate concept of what facts are important and unimportant for the purposes of the user, resulting in vital in-

formation being submerged, and details and matters of secondary importance being emphasized.

3. Attempts to introduce too many data tend to make for complexity and result in confusion and misinterpretation.
4. Approximate and not exact figures are generally shown.

The use of graphs is not a substitute for careful analysis of the facts, and the exercise of good judgment in determining what course of action should be followed. It is a style of presentation to be used under appropriate circumstances to aid management, and when it ceases to be an aid the method should be discarded. "There is some tendency today to make the graphic chart the end in itself, rather than a means to an end."¹

ADVANTAGES OF GRAPHS.—The use of the graphic method of presentation affords the following advantages:

1. It saves the time of the reader in that the essential facts can be quickly perceived.
2. It aids in an analysis of the information presented. Investigation and development of the reasons for variations, peaks and valleys is encouraged.

Probably one of the most important uses of graphic charts irrespective of the type, is for the development of analytical thinking and investigation. Invariably a chart fairly bristles with interrogations—Why is this sudden decrease? or What does that rapid increase portend at this time? etc.—which in many cases requires thought, study and careful research to obtain the correct answer.²

3. It assists in forecasting the future by readily disclosing past and present trends. The forecaster, with a knowledge of the factors, conditions, etc., that influenced the past, is helped in predicting future trends.
4. It saves time of the preparer. Following the design, preparation and acceptance of the type of chart to be used, subsequent periodic postings of current data are generally simple processes.

What Is the Office Executive Responsible for Controlling?—The individual responsible to general management for office operations is usually responsible for controlling:

1. The quality, timeliness, completeness and dependability of all the services required.

¹ B. F. Young, *Statistics as Applied in Business*, The Ronald Press Co., New York, 1925.

² Allan C. Haskell, *Graphic Charts in Business*, Codex Book Co., New York, 1922.

This applies not only to the preparation and interpretation of current and special statements but also to such services as duplicating, communications, central filing, mailing, etc.

2. The cost of services. The cost of office operations consists of labor, stationery supplies, printed forms, rent, depreciation of furniture and equipment, maintenance and repairs, and communications (postage, telephone, telegraph, cable and radio).

These costs will vary in proportion to the volume of work produced and the degree of judgment exercised in organizing the office personnel into proper units, in defining their individual responsibilities, and in establishing proper procedures, methods and standards of performance.

3. Personnel. This responsibility involves the selection, training, performance rating, compensation, promotion, working conditions, morale, etc. of office employees.

Dependent upon the nature of the company's business and the prevailing organization plan in use, some of the above responsibilities may be properly shared with, or carried by, other individuals; e.g., a firm employing large numbers of both factory and clerical workers may have a centralized personnel department which promulgates certain policies affecting both groups, and is responsible for employment, training, etc. In the majority of such cases, however, the office executive retains the responsibility and authority for handling, within defined limits, personnel matters for the employees under his jurisdiction.

Reports Required By the Office Executive.—Even though appreciable progress has been made in recent years, the statements, reports and services demanded by executive management of different companies from their respective office staffs are far from uniform. This is perhaps occasioned in part by the difference in the very nature and the size of each company's business and because management is not at present an exact science.

The lack of uniformity of services required, as well as differences in the size of office forces, the extent to which office operations have been simplified and standardized, and in actual organization of the work, all combine to cause variations in the activities for which the office executive himself assumes direct control and for which he receives current reports.

In actual practice the chief office executive in a large organization normally receives few current reports covering office operations, as the responsibility for controlling these activities is delegated to assistants. The office executive currently devotes his time to interpreting major reports to be submitted to general management and in arranging for the preparation of special reports and statements required by governmental and other outside agencies. If reports on office operations are not received currently by the office executive.

a directing influence is exercised through frequent contacts with assistants who inform him orally as to departmental sub-standard performances and other exceptional non-routine occurrences. These contacts may be further supplemented by rotating inspections or audits of supervisors' control records. Serious below normal accomplishment may warrant the preparation of temporary reports for the chief office executive. Such reports should be discontinued as soon as the conditions are rectified.

There are two items, typical perhaps of others, to which the chief office executive must give personal attention and upon which he should receive current data:

1. Office Expense
2. Office Personnel

OFFICE EXPENSE.—To assist in the control of office expense it is advisable that a budget by departments be prepared in collaboration with each supervisor. The itemizing of expenses by departments in this forecast may involve detail out of proportion to the benefits to be gained, in which case only salaries need be budgeted by departments and the remaining items of expense included in office overhead.

The office executive should receive reports at stated periods setting forth a comparison of departmental actual and budgeted expenses. Only abnormal differences so disclosed need be followed up for the purpose of determining the cause and the means available for correction.

A further control of office expense may be obtained through the application of standard cost methods, particularly to those operations for which a unit of measurement is practicable. Based on limited observation, however, this approach does not appear to be widely used in connection with office operations. Basically it involves forecasting the expense of each work assignment in a department, based on an expected normal volume of work units. These forecasts are accumulated and the totals subsequently compared with the actual total volume and actual total major expenses of the department. An analysis of the variances is accomplished by ascertaining the differences in volume and time of each work assignment.

It is possible for the office executive to bring into sharp relief the nature and cost of the effort upon which the office dollar is being spent by recapping at intervals both the expected and actual expense of work items in all departments, whether determined by budgets or cost methods, that contribute to the preparation of a specific report or the execution of a specific service. To illustrate—the assembling of the expense of each section incident to the control and collection of Accounts Receivable, involving such operations as pricing, billing, bookkeeping, credit, cashier, mailing, etc., might result in a change in management policy involving the lines of merchandise on which credit is extended or indicate the necessity for further study and develop-

ment of office techniques to improve the relationship between cost and value in use.

OFFICE PERSONNEL.—The chief office executive is called upon to meet with employees to adjust complaints and grievances not susceptible to satisfactory solution by supervisors, and to be directly active in other personnel matters, most of which may not readily lend themselves to periodic reports.

There are, however, certain personnel activities on which it appears advisable for the office executive to receive reports at regular periods:

1. **Turnover.** Excessive turnover—although there may be a wide divergence of opinion as to the percentage of turnover that is healthy—is generally agreed upon to be costly. A report showing the number and causes of separations, promotions, and employments by departments will facilitate analysis and the application of possible corrective measures.

2. **Absenteeism.** Keeping the number of days lost from work at the lowest possible figure, is just as important in the office as it is in the factory. Data by departments indicating frequency and extent of absence and the causes thereof, will prove helpful in indicating the possible need for improved working conditions, better medical treatment, etc., to keep interruptions to the scheduled flow of work and the loss of pay by the employees at a minimum.

3. **Compensation.** The largest single item of expense in the average office is labor.

Even though there exists a medium of control through the budget and through the use of a carefully prepared and administered job analysis and salary evaluation plan, the chief office executive should receive information periodically showing, by departments, the percentage of total employees beyond the middle step-rate of their salary range, the percentage of employees at maximum, and the number of cases and total dollars of salary increases granted during the period. These data will in part reflect the degree to which each department's salaries are approaching a frozen condition, and the rapidity and extent to which salary increases have been granted during the period.

Information as to total bonus earnings in departments operating on financial incentive plans should be examined to ascertain the results obtained by this method of compensation. Existing company rates of pay should be compared periodically with a local salary market survey report.

Depending upon the completeness of the personnel program in effect, the office executives may, as conditions require, receive reports on the progress of training programs and the results of measuring office employee morale.

Reports Needed by Supervisors.—The reports needed by the office supervisor are determined by the responsibilities delegated to him and the

nature of the specialized work produced by his unit. He is directly interested in all the details affecting the services his group furnishes.

He is responsible either in whole or in part for—

1. Production
2. Expense
3. Personnel

PRODUCTION.—It is the supervisor's job to see that the work is completed within the allotted period of time and in accordance with the predetermined method and manner.

In addition to adjusting the number of clerks according to the volume of work to be completed, he must by direct supervision, supplemented in certain instances by suitable records, control the dispatching, individual performance, quality and timeliness of the work assigned to his unit.

The knowledge of the jobs ahead, status of work in process, and the assignment of work to employees may or may not require the keeping of records, the use of job tickets, a control board, etc. In certain instances unfinished jobs may be subject to control by observation, i.e., the practice of keeping all unfinished work on top of the operators' desks or in bins. There are a number of non-report techniques possible of application.

To control individual production it is necessary that each clerk record the actual time expended in completing each job and, where measurement is practicable, the number of units. When these records are compared with standards of performance it is possible to obtain an index of the efficiency of each worker. By combining these records the production efficiency of the department, one measurement of the supervisor's over-all effectiveness, can be obtained. If standards of performance for all operations have not been accurately and carefully determined, a record, where practicable, of work produced is desirable for historical comparison.

Errors should be recorded and brought to the attention of each clerk in order to ascertain the percentage of errors, based on the total volume of work units produced, for each employee and for the department.

The supervisor is not only responsible for seeing that each individual job is finished within the standard time allowance, but also that the product is finished not later than the due date on which the report, statement, etc. is scheduled for submission. A record of the date, and on occasion the time of day, each report, statement, etc. was finished and delivered to the recipient, should be maintained. A more detailed discussion of production reports will be found in the next section of this chapter.

EXPENSE.—Only those expenses over which the supervisor has direct control should be included in his department's variable budget. Generally the cost of services furnished his department by other units should not be

included in his budget. Although he can control the volume of the service to be supplied to him by other groups, and should submit forecasts of this volume, he cannot control the unit cost in the department rendering the service. However, it is possible to charge for these services on an estimated unit cost basis.

Actual expenses should be compared with the budget at stated intervals and the supervisor required to explain variances. A more detailed discussion of expense control will be found in the preceding parts of this chapter.

PERSONNEL.—The supervisor, as management's first point of contact with the employee, has an important place in an effective personnel program.

He must for one thing rate the employee's performance. In order that this be divorced as far as possible from the realm of opinion and emotion, it is desirable that the facts in this connection be made a matter of record.

Records should be maintained indicating each employee's

1. Productive efficiency
 - (a) Volume
 - (b) Quality
2. Dependability
 - (a) Attendance
 - (b) Punctuality

While there may be other items such as versatility, potentiality, etc. to be considered in connection with evaluating an employee's over-all worth, the foregoing are important facts to be weighed in adjusting compensation and in giving consideration for promotion or transfer.

Control Over Reports.—The day has long since passed when the owner or manager of a business, large or small, can "carry his office under his hat."

Regardless of the requirements of governmental authorities, he must, if the business is to continue, have facts to aid him in deciding policies of purchasing, manufacturing and selling the firm's products. Specialists assemble these facts and present them in the form of reports and statements to aid him in making decisions.

Conditions change and what was pertinent data today may be less than useful tomorrow. Therefore, all reports and statements, whether furnished to a foreman, supervisor, superintendent, plant manager, salesman, sales manager, purchasing agent, an administrative officer or the board of directors, should be subjected at specified intervals to a rigorous examination to see if they are still needed and meet the previously discussed characteristics of a good report.

The office executive can contribute much to the benefits to be gained from such a review. By adopting a sincere attitude of wanting to learn the other fellow's problems, showing a sympathetic interest and an intelligent willing-

ness to supply data that will really aid in solving those problems, he not only will be enlightened as to the intricacies of his company's business but will be more apt to receive considerate attention when requesting that the need for continuing an existing report be weighed. It will prove helpful to the user of the report if he is informed as to the cost of its preparation. Certain conditions may justify dramatizing some of these costs by showing the value or volume of sales necessary to produce their equivalent in gross profit or some similar item that will accentuate the fact that reports cost money and that cost should be exceeded by the user's evaluation of the benefits received.

Production Reports

Records for Line Management Use.—The mere preparation of a production record may frequently have a definite psychological value, but this value is affected but little by the form of record kept. However, in considering the measurement of performance, the only useful purpose of a production record is the transmission of information. Proper design of such records will therefore view them as media, not as results, and will concentrate its attention on the source of the data and on its utilization. The record should require a minimum of time and mental effort to effect its accurate inscription, should be stripped of all extraneous matter and should facilitate quick analysis and application of its data. For purposes of analysis, production records may be divided into three broad classes, supplying information to: (a) line management, (b) staff personnel, and (c) administration. Some overlapping is inevitable and record design should recognize this fact by elimination of duplicate records supplying the same information to two types of recipient.

Composition of the record will be determined by its purpose. The bare essentials of primary records, whether for an individual or for a "team," include: (a) employee's name, (b) task identification, (c) work units completed, (d) elapsed hours, and (e) the date. How much of this information can be pre-coded to advantage will depend on local conditions, but any standard data such as date, group number, operation or job number that can be stamped in advance on quantities of production records will usually save considerable clerical time and improve accuracy as well. The additional data borne by such records will probably be limited only by the appetite of the management and the patience of the operator. However, commonly accepted additions include: (a) starting and finishing time, (b) measurement and description of delay or other non-productive time, (c) quantity and type of waste, (d) work rejected, (e) standard hours allotted for completion, and (f) title of labor or wage classification. It must not be assumed that the efficiency of a record rises in proportion to the amount of information it can be made to carry. Illustrating this point is the common practice

of limiting a time card (Figure 152) to simple recording of starting and finishing times before and after the lunch period, and for any overtime worked. This enables the payroll clerks to compute wages and overtime due, independently of other records of performance. In fact, some offices further simplify such recording by requiring "out" registration only in case of leaving before normal closing time or in case of overtime, on the assumption that supervision can and should control the times of dismissal. A simplified production record (Figure 153) for phonographic transcribers illustrates

This Side Toward Clock							
ABSENT				DAYS			
OUT <small>Before Closing Hour</small>				Times		MINS.	
LATE				Times		MINS.	
DAY	IN	OUT	IN	OUT	IN	OUT	
Wed.							
Thur.							
Fri.							
Sat.							
Sun.							
Mon.							
Tue.							
PR13A 7581C							

Figure 152. Typical Time Card

one method of accumulating a compact production record for a full week. Starting meter readings are placed below finishing meter readings so that subtraction requires no optical acrobatics. Time is recorded merely in hours and tenths to facilitate mental computation of elapsed time. Figure 154 illustrates a similar elementary record used where meter readings are not involved.

Use of Records.—The information from such records will enable line management to determine: (a) Relationship of individual production to standard performance and to office averages. When preparing such a report for general distribution, individual performance should be expressed in terms related to a standard requirement (Figure 155) rather than mere

To:

Date: 2/15/—
From: Payroll Group

ORGANIZATION PLAN OF TELEPHONE HOURLY AVERAGE AND BONUS LIST
Week ending February 14, 19—

Reg. #	Name	Oper. No.	Pro. Per.	Std. H. A.	Error		Net H. A.	% Std.	Bonus			Hours		
					#	Penalty			Std.	Av.	Ref.	Loss	Std.	Av.
11-10	A. Jones.....			560			852	152	4.81			.61	16.5	
43	C. Ash.....			480			796	166	2.31				7.3	
11	F. Evans.....			600	1F	100	759	127	2.59				16.3	
34	L. Watkins.....			560			702	125	.97				6.8	
19	N. Lewis.....			520			701	135	1.16				6.4	
32	M. Curry.....			520			731	141	.42				2.0	
93	V. Davis.....			480			696	145	1.06		1.10		4.9	
31	H. Green.....			560			693	124	.47				3.5	
60	B. Kelly.....			520			660	127	5.01		.08		35.8	
28	D. Williams.....			520			644	124	.29				2.3	
35	D. Harris.....			480			635	132	.70	.19			4.5	7.7 T
73	C. Mitchell.....			520			627	121	2.30				21.5	
44	M. Burns.....			520			619	119	.15				1.5	
36	L. Brown.....			480			567	118	.41				4.7	
147	P. Walker.....			420			493	117	1.52				20.8	
12	P. Hall.....	254	4	300			384	128	3.08				36.7	
77	A. Moore.....		3	375			383	102	.11				13.2	
40	S. Hayden.....		2	262	1M	250	339	129	1.26				16.3	
12	P. Hall.....	254B	1	240			300	125	.84	.92			14.0	
16	M. Johnson.....									.82				36.8 T
48	A. Shoemaker.....									.73				32.7
55	G. Smith.....													29.2 T
BELOW														
9	C. Page.....			560	1C	750	499	89					7.2	2.8
67	A. Campbell.....			480			467	97					14.4	
Total Net.									32.69				256.6	109.2

APPROVED BY:

STANDARDIZATION DIVISION

Figure 153. Organization Plan of Telephone Hourly Average and Bonus List

Figure 154. Simplified Production Record

[illegible]

extent of delays and bottlenecks. This is particularly true when the record indicates substantial delay time due to machine repair, waiting for work, previous errors and other controllable factors. (e) Probable overtime requirements. (f) Status of materials supply. (g) Adequacy of mechanized equipment. Simple arithmetic may indicate that all present equipment operated at available speeds can not meet schedules for peak loads or special conditions. (h) Comparative output of different types of equipment or methods. (i) Opportunities for waste reduction. (j) Relationship of

actual costs to budget. Not the least of the opportunities afforded by such data are the agreement between worker and management as to what constitutes a fair day's work, the fostering of competitive spirit between individuals and groups, recognition of outstanding performance and the identification of worthy prospects for promotion.

Records for the Information of Staff Personnel.—Staff personnel usually draws information from production records of three basic types: (a) primary production records, (b) secondary compilations of certain parts of the information contained on primary records, and (c) special primary production records created by personnel other than those actually engaged in production. For the first type of usage, production records must be designed in such fashion as will readily enable computation of each individual's payroll and bonus, allocation of costs to individual contracts or projects, and deduction of withholding, social security and other taxes or contributions. For the second type of usage, production records are designed to give information by groups rather than by individuals, by processes rather than by machines, by longer time intervals and broader grouping in general. For example, proper scheduling will require continuous reports of production, from groups who perform interdependent portions of a single process, or who make parts which are eventually assembled into a single product. Reports of group or process production may be required to permit salesmen to estimate delivery dates, or to permit better work distribution to level off peaks and valleys. For the third type of usage, special production records must be prepared to fit the task by those who are conducting the special analysis, usually a non-repetitive comparison of equipment or methods. The record of production compiled by a time-study operative comparing the output or quality of two competitive pieces of office equipment is a typical example of this third type.

USE OF RECORDS.—The fundamental difference between the staff use of production records and that of line management is that while the line deals with direction of productive personnel, the staff is concerned with creation, alteration or procurement of materials, methods, equipment and facilities. For example, studies of production records might lead to such widely varying courses of action as purchase of posture chairs, labor-saving types and sizes of carbon paper, or the addition of messengers to save the time of higher-priced labor. While line meets schedules of production, staff strives to improve quality or simplicity of design, cost control, load peaks and valleys and coordination between sales and production. Also, staff shows effect of improved working conditions on production, creates instructional charts, establishes and maintains incentive plans, and similar activities. Therefore, production records for staff purposes will consist largely of secondary compilations and special records. Due to the exploratory nature of staff activi-

ties, production records for this use should err, if at all, on the side of too much information rather than too little. Defense of this approach consists merely of the fact that otherwise an entire study must frequently be repeated in order to be certain of data available, but not recorded, during original studies. Production records in this case are the raw materials from which new methods are built.

Records for Administration.—The principles which underlie administrative use of production records are no different from those applied by line and staff executives. The records themselves differ because the scope of decision by administration has broadened almost to the exclusion of specific individuals from administrative data. Production records here must be related to such impersonal matters as taxes, markets, raw material and labor

Day	Week No.	Shift	Machine	Edition	Employee No.	Operation No.	Units	Production	Points
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40
41	41	41	41	41	41	41	41	41	41
42	42	42	42	42	42	42	42	42	42
43	43	43	43	43	43	43	43	43	43
44	44	44	44	44	44	44	44	44	44
45	45	45	45	45	45	45	45	45	45

Edition _____
 Employee No. _____ Name _____
 Operation No. _____ Production _____
 Point _____

BINDER HAND WORK SECTION

Figure 156. Tabulating Card

sources, financial programs, employee social and economic welfare, advertising, and general modernization of buildings and equipment. Production records may for instance indicate a lower unit cost of production in an area having undeveloped sales potential, indicating a profitable locale for expansion. Similar records might indicate the desirability of assembly of a complete product near a source of raw materials rather than near a source of purchased parts, or might show the savings of a continuous versus piece-by-piece assembly system. Such records might show that hand-to-mouth supply of materials raised production costs more than the cost of borrowing adequate capital to make larger raw material inventories, or manufacturing for inventory, feasible. Internally, production records lend themselves to reduction of overhead, cost control, establishment of quotas, evaluation of sales territories, departmental or divisional comparisons of performance and forecasts of all kinds.

Physical Characteristics.—Performance records consist of an almost limitless variety of forms, shapes, sizes and materials. About the only semi-standardized specifications are for the cards used in conjunction with tabulating or similar mechanized equipment (Figure 156). The amount of information to be shown and the method of display govern the size of production boards or wall charts used in expediting offices, or where committee consideration is involved, to portray the exact status of jobs in process. The same is true of secondary production records compiled for general reference. On the other hand, primary production records handled by the worker should be designed for easy, rapid and accurate entry of data, which restricts size of record, number and placement of entries, frequency of use and methods of disposition, within fairly small limitations. Many precautions that should be observed however, apply to most of such records. For example, spaces for entry of data by workers should be roomy if the work is such that the hands become soiled, or if large pencils or crayons are used to make the entries. Records filled in on the typewriter should be designed for typewriter spacing and should avoid entries so near the bottom of the record as to cause it to slip out of proper alignment. Records which are to be preserved should be of durable material and dimensions to fit standard filing cabinets. Records attached to other papers should not be small enough to become lost or detached, nor should they be so large as to be mussed up by folding or banding. Spaces provided for entries should be in logical sequence to reduce mental effort or confusion. Vital data should not be placed too near the edges of records likely to become dog-eared. The printing should be bold enough for easy legibility, but light enough to be dominated visually by the information entered on the record.

General.—Common errors in the utilization of production records are: (1) the attempt to summarize or combine production data without previously fixing definitions of the units in which such measurement is expressed, for instance using such units as "one complaint adjusted" or "one order filled"; (2) improper use of an arithmetic mean to show average production, for instance adding meter units of typing solidly columnar copy to meter units of straight manuscript copying; (3) too long delay between performance of the work and issuance of the record, for example bonus records issued so long after the work was done that effort and reward have lost their effective connection; (4) use of production records alone as a merit-rating device; (5) subordination of a result to a system; and (6) failure to distinguish between temporary variations in productivity and long-term trends. A production record is not an end in itself, but a tool of management, and is the raw material from which alert management may formulate policies ranging from new lights for the office to new models for the sales force.

Office Operations Audits

The Audit Must Follow a Plan.—An office operations audit is an inspection and appraisal of every factor affecting the quality and quantity of office operations. It involves a specialized technique which will be described in this section. Like the financial audit, it should be conducted at regular intervals and comprehend the entire office operation and follow a well integrated plan.

A complete operations audit report will furnish management with an objective appraisal of the effectiveness of each activity of the office in terms of accepted standards of accomplishment. It will indicate weaknesses in organization, operating policies, procedures, personnel and forward planning, and suggest corrective action.

An office operations audit differs from the usual departmental or functional survey in that it implies an integrated examination of all office operations and functions. It is essential that a pattern be established and rigidly followed. This is frequently referred to as a check list detailing the items to be examined and reported upon. It is not the purpose of such an audit to introduce new systems or initiate radical changes; rather it is a fact-finding and evaluation activity which will furnish data upon which future changes can be made.

Who Should Make the Audit.—Audit work of this type involves the need for special talent not usually found among operating or planning personnel. It calls for a high degree of objectivity, analytical ability of a high order and special knowledge in a variety of fields. A large office establishment may create its own audit staff by careful selection and training and assigning the direction of the procedure to a top staff officer. Other organizations may profitably utilize the services of consulting Operations Auditors who can bring to the task the accumulated experience of many and diverse office institutions.

Audit Check List.—As a guide for a standardized audit procedure, a "check list" should be developed which will serve as the schedule of work and outline for the audit report. The following items are pertinent to most office audits; however, at times, additions will be suggested because of the special nature of the function or operation under examination.

1. Departmental Routines

- (a) Analysis of Functions

- (1) Source of work

- (2) Disposition

- (3) Forms used

- (4) Reports prepared and use of reports received from other departments

- (b) Inter-departmental relations
- (c) Job analysis of the work of each clerk
- 2. Departmental Production
 - (a) Establish unit for work measurement
 - (b) Establish standards for each job and check production in relation to standards
 - (c) Check status of work (current or delayed)
- 3. Correspondence
 - (a) Method of handling
 - (b) Quality, tone and length of letters
 - (c) Use of form letters and paragraphs
 - (d) Use of phonographic equipment
 - (e) Use of telegraph and long distance phone service
 - (f) Status of correspondence (current or delayed)
- 4. Files and Filing
 - (a) Adequacy of system and equipment used
 - (b) Accuracy
 - (c) Value of material filed—temporary, permanent
- 5. Forms and Supplies
 - (a) Examination from point of view of utility, functional features, cost, etc.
 - (b) Possibility of simplification or elimination, in whole or in part
 - (c) Adequacy and necessity of checking operations
 - (d) Controls of supplies and stamps
- 6. Machinery and Devices
 - (a) Adequacy in relation to job
 - (b) Time equipment is in use
 - (c) Condition, regular inspection service
 - (d) Adequacy and use of communication devices; e.g., telephone, inter-office units, messenger, "dumb-waiters," etc.
- 7. Clerical Selection and Salaries
 - (a) Employment and promotional procedure—use of tests, and other aids
 - (b) Job evaluation and rate determination
 - (c) Internal and external consistency of wage rates
 - (d) Male vs. female
 - (e) Training and education
- 8. Clerical Supervision
 - (a) Ratio of workers to supervisors
 - (b) Adequacy of supervision
 - (c) Check number of clerks away from desk
 - (d) Supervisory training

9. Physical and Physiological Factors

(a) Layout

- (1) Location with respect to other departments
- (2) Adequacy of space allocated
- (3) Expansion requirements

(b) Physiological factors

- (1) Adequacy of light, heat, and ventilation
- (2) Noise distractions
- (3) Arrangement of desks and files in relation to light, heat, noise, and supervision
- (4) General appearance of office

Audit "Tools."—Certain basic data must be accessible or prepared in order to expedite the examination. The auditor will need:

1. A statement of operating policies, general and departmental
2. Organization charts, departmental and functional
3. Work distribution charts
4. Layout charts
5. Process charts
6. Sample of forms and recurring reports prepared
7. Equipment inventory by operating units
8. Reports on individual (if available) and departmental production
9. Office rules and regulations

Audit Procedure.—It is generally advisable to conduct operations audits on a departmental basis. The auditor will find it advisable to physically "move in" to the unit. In order to obviate friction with the supervisors and workers, he should assume the position that he is making the survey as a service to the department head. Furthermore, he should discuss all findings and recommendations with the head of the department before incorporating them in his report. Departmental dissent to suggestions and recommendations should be made a matter of record in the report.

In general the audit will proceed in accordance with the Check List guide. Each item will suggest an action in the form of an observation, spot or complete check, analysis or interrogation. Operations will be checked in accordance with accepted or determined standards. The "Work Tools" listed above will be applied where and in the manner indicated. A few illustrations may be pertinent:

Policy Information. The audit may detect the inadequacy of existing policies and indicate modification. Degree of conformity to existing policies should be determined. The audit will determine if policies are clearly understood and if they are made known to all concerned.

Organization Chart. The "over-all" chart will be examined in relation to the place occupied by the unit under study. Some of the key points to be observed are:

1. Adherence to the fundamental principles of good organization
2. Type of control exercised over change with expansion
3. Availability of Organization Manual
4. Evidence of friction which might be related to plan of organization

Work Distribution Charts. These are designed to designate in considerable detail the principal functions performed by sections and individuals. They form the basis of the auditor's appraisal of balance distribution of work.

Process Chart. All operations within the unit should be charted in accordance with the well-known "five symbol process chart" technique. These charts should suggest points of investigation for straight line flow, unnecessary checking, possible elimination of operations, etc.

Forms and Reports. An examination of forms should be made from the point of view of their functional adequacy and physical properties; e.g., color, size, rulings, space, accommodation to office machines, etc. The examination of reports and records should be made to determine their usefulness, adequacy, frequency of issue, circulation, etc. Such an examination will quite frequently uncover periodic reports which have outlived their usefulness and others which can be made more productive.

Work Measurement. This investigation comprehends the establishing of standards for various clerical work operations and a consideration of work accomplished (clerical output) in relation to established standards.

Physical and Physiological Factors. This phase of the examination consists of an inspection and appraisal of the adequacy of the various physical and physiological factors which have a bearing upon quality and quantity of clerical output. These would include a consideration of space, noise, light, heat, ventilation, etc.

Equipment Inventory. This phase of the audit consists of determining the adequacy of office machinery and equipment in use in relation to job requirements.

Benefits of an Operations Audit.—There is a wide variety of benefits which may accrue to an organization from such an intensive examination as suggested in this audit procedure. An operations audit can and will define the nature of operating weaknesses and should suggest plans and devices for correcting them. It will furnish the department head with an objective detailed appraisal of the effectiveness of his work staff and the policies and methods followed in his operations. It will furnish an agenda of recommendations to the planning department with suggestions as to procedure.

The cost of an operations audit whether performed by members of the staff or outside talent will probably be absorbed many times over in the savings resulting from this form of examination. Furthermore, it has been found from experience that re-audits made after a lapse of two or three years will be almost as productive of results as the initial examination.

Preparation, Use, and Maintenance of Bulletins and Manuals

Reasons for Recording.—Established practices, procedures, routines, and operating policies concerning a business should be placed in writing.

No matter how small or how large a business may be, it can profitably use a plan of having standard practices recorded in writing. The reasons for this are twofold.

1. There is a value to the employee. Employee is protected against errors caused by his own interpretation or misinterpretation of verbal instructions and explanations. He is relieved of the necessity for devising his own methods of performance and he may benefit by the knowledge and experience of others in the same or similar jobs. Waste of motion and incorrect action on the employee's part can be eliminated and his efficiency thus increased. New employees are more quickly trained.

2. There is a value to the employer or management. It lies in the good that comes from having management's ideas clarified in the process of writing down instructions, policies, and practices. Weaknesses may be brought to light and corrected. Supervision is simplified; responsibility for errors is fixed. The result should be a reduction in operating cost through an increase in productivity.

Manner of Recording.—Standard practice instructions may be recorded in a variety of ways. The following discussion, however, is confined to recording instructions either in the form of bulletins or manuals, or a combination of the two.

Bulletins of Standard Practice.—A standard practice bulletin is a statement in writing addressed to persons concerned, issued from official source, and containing a statement of policy or practice or a revision of either. Standard practice bulletins usually convey instructions of immediate need regarding new practices, the discontinuance of current practices, changes in office hours, changes in office customs, etc.

Bulletins may range from a detailed explanation of clerical procedure to a broad statement of executive policy. The extent to which a bulletin carries details will depend on the organization level affected by it. The lower the level to be reached, the more detailed must be the bulletin.

Bulletins act as the vehicle for promptly carrying instructions to those affected and as the basis for the development or change of manuals.

CONTENTS.—Because conditions in different businesses vary, no standard outline for the formulation of a bulletin can be suggested. The following points in general should be contained in every bulletin:

1. Where (in what offices and/or territories) does the bulletin apply?
2. What is the bulletin about?
3. When is the new plan or procedure effective?
4. What is the present or current plan?
5. Why is the new plan or procedure being adopted?
6. What is the new plan or procedure?
7. What are the differences from the old plan or procedure?
8. Who is responsible for the performance of individual operations?
(Indicate by job or position title.)
9. How are various steps to be performed?
10. In what order are the various steps to be performed?

FORMAT.—Bulletins may be reproduced by various duplicating processes or sent out as individual communications. They should be of a size convenient for filing and be subject to identification by a subject heading and, if possible, a number.

For easy means of recognizing bulletins when mixed with other office papers, it is desirable to have the bulletins on special colored stock or to use colored inks in the bulletin headings.

It is desirable to have bulletins carry their own circulation or routing instructions which, when completed by recipient, may act as a record of instructions received.

Time taken to include sample forms is very well spent as it gives the recipient of the procedure a quick reference to the forms mentioned in it. An actual form, a part of a form, or a reduced photostat copy can be used (see Figure 157).

Manuals.—A manual is an orderly collection or compilation of instructions—directives—facts or data pertaining to the affairs and activities of a business—job or method.

TYPES.—Manuals may be divided into four types or groups:

1. Organization Manual
2. Policy Manual
3. Procedure Manual
4. Employee Handbook

FORMAT.—Whether a manual is to be bound or loose leaf depends on its type, potential use, and other factors. The method of binding can be determined by the need for revision and the frequency of revision. The size of

BULLETIN

To _____ No. _____

From..... Date.....

Subject.....Notification of Expiration—Fire (F67-42)—Revised.....

INITIAL HERE	
Manager	This bulletin affects all Fire #1 Offices and is of particular interest to the Filing, Und., Pol., and Acct. Depts. Its purpose is to announce the revision of Notice of Expiration—Fire (F67-42, Exhibit A).
Office Manager	I. EFFECTIVE DATE The revised form will be put into use upon receipt of supplies indicated under "Preliminary Arrangements."
Cashier	II. PRELIMINARY ARRANGEMENTS Initial supplies of revised Notification of Expiration (F67-42) are being sent to each Fire #1 Office with the release of this bulletin. Upon receipt of the revised forms all existing supplies of the old form in Field Offices and the H. O. Stores Dept. are to be destroyed.
Loss Mgr. or Claims Mgr.	III. PROCEDURE A. ACCT. AND POL. DEPTS. Revised Notification of Expiration (F67-42) is to be used in accordance with the expiration procedure recorded in Chapter VI of the Cancellation Manual.
Corres. Manager	B. FILING, UND., AND POL. DEPTS. Captions have been added to revised Notification of Expiration (F67-42) to include the Engr. Clerk, the Reporting Forms Clerk, and the Calculator, and instructions for handling are contained in the form itself (see Exhibit A).
Und. Manager	
Sales Manager	
Filing Dept.	

1FOC-82B

Figure 157a. Form of Bulletin

EXHIBIT A

Notification of Expiration—Fire (F67-42) (Facsimile)

NOTIFICATION OF EXPIRATION—FIRE

Daily Report File Clerk
Underwriter.....
Survey Clerk
To: Engineering Clerk
Reporting Forms Clerk
Calculator
Cancellation Clerk

The policy indicated on the attached Expiration Card is to be expired.

EXP. CARD FILE CLERK: On expiration date of policy to be expired, attach Expiration Card to this form and send to

D. R. FILE CLERK: Pull D. R., attach Expiration Card and this form and send to

UNDERWRITER: Prepare Cancellation or Expiration Notice (F10-277), pull Location Card and attach all to D. R. If Survey File is to be closed out, send to Survey Clerk. Otherwise, cross off titles of Survey Clerk and Engineering Clerk in routing and send entire file to Calculator (or Reporting Forms Clerk if a reporting form policy is involved).

SURVEY CLERK: Pull Survey File for location or locations indicated and mark for closing. If a Risk Retirement (F80-1150) is in Survey File, send entire file to Engr. Clerk. Otherwise, cross off Engr. Clerk title in routing, and send surveys to Filing Dept. and remainder of file to Calculator (or Reporting Forms Clerk if a reporting form policy is involved).

ENGINEERING CLERK: If reason for termination as indicated on Risk Retirement (F80-1150) is other than "prohibitive," prepare Undesirable or Physical Risk Card and Risk Report for M.R.B. Send surveys to Filing Dept. and remainder of file to Calculator (or Reporting Forms Clerk if a reporting form policy is involved).

REPORTING FORMS CLERK: Pull policy records. Send entire file to

CALCULATOR: Calculate dividend, enter on D.R.

CANCELLATION CLERK: Destroy Location and Expiration Cards on this form after they have served their purpose in cancellation routine.

HARDWARE MUTUALS

2F67-42

Figure 157b. Form of Bulletin (*reverse*)

the manual has to be considered because in some cases it is kept in the desk or file and in others in the pocket. The purse or pocket size is popular for Employees' Handbooks because it can be carried in the pocket or kept in the desk for ready reference.

Other items to be considered in the format of a manual are the paper and the color to be used. The paper will depend on whether the manual is to be printed, mimeographed, etc.

Too much emphasis cannot be given to the need for detailed and cross indexing.

ORGANIZATION MANUALS.—There are entirely too few organization manuals in existence. There are many companies which do not even have organization charts, and many of those which have charts too often fail to keep them up to date. It is not unusual, therefore, for an employee not to understand his place within his department or the place of his department or division within the organization.

The organization manual should include an organization chart showing lines of authority as well as lines of responsibility. It should also include names of departments, their locations (whether at the home office, branch office, sales office, or any other geographic location), titles of department heads, duties of the departments, the personal duties of department heads, and the subdivisions of the departments. This should be repeated for each subdivision of each department.

The organization manual should show departmental relationships, divisional relationships, etc.

The organization manual is a "must" for any large corporation or organization of national scope.

POLICY MANUALS.—The minutes of directors' meetings really constitute the master policy manual and it is from the action taken by the directors that other policies should stem.

Policies are of varying degrees of significance in the conduct of any enterprise. They may be classed as basic, general, and departmental. As such, their determination rests at different levels in the management organization.³

If managerial policy is to be clear-cut, definite, and generally understood and adhered to, if unhappy personnel and industrial relations conditions which lead to controversy and sometimes violence are to be avoided, it is well to prepare policies in written form. Too often company policies are mixed in with a lot of extraneous material. They should be extracted and placed in the company policy manual.

³ Paul E. Holden, Counsbury Fish, and Hubert Smith, *Top Management Organization and Control*, Stanford University Press, 1941.

1. Basic Policies. Basic policies give the broad picture of where a company is trying to go. Long range objectives are defined by basic policies. They are set by the Board of Directors.
2. General Policies. General policies may be regarded as of short range or everyday operating significance but affect some or all divisions of the company.⁴ General policies are always in conformity with basic policies. Authorization of such policies usually lies in the general management group.
3. Departmental Policies. Departmental policies stem from basic and general policies and are set up for the guidance of individual departments of a company. The formulation of departmental policies is in part the responsibility of department heads.

Some organizations have gone so far as to state that company policies shall be so classed only when they are in writing. This decision was no doubt made by some concern which felt that unless company policies were in writing they would be subject to unauthorized change or misinterpretation. In many concerns, each senior executive is supplied with a copy of an all-inclusive policy manual. This manual is organized according to the policy classes previously mentioned and is broken down by the subject fields to which the policies relate. From this all inclusive manual, other policy manuals of a general or specialized nature are prepared and distributed to those whose responsibilities make it important for them to have this ready and complete reference manual always at hand. In a great many cases, policies in which employees are interested or which affect them are included in other manuals or are compiled separately and presented to the employees. A typical example of this latter plan is the "personnel policy manual" or as it is titled, in the case of the International Harvester Company, "Harvester Policies for Harvester People."

Senior management must work constantly with the all inclusive policy manual in the development, change or cancellation of policies, as well as in their interpretation, integration and evaluation. In a similar way, the specialized or more limited policy manuals serve those to whom they are supplied. These manuals have important value as reference guides and training media. They also assist in the development and maintenance of a well correlated pattern of policies and are very useful in appraising results and guiding operations.

PROCEDURE AND INSTRUCTION MANUALS.—This type of manual is so named because it consists of detailed procedures and job instructions. Good procedure manuals include illustrations, charts, diagrams, and pictures of the equipment to be used, the manner in which the work is to be done,

⁴ Holden, Fish and Smith, *Top Management Organization and Control*, Stanford University Press. 1941.

sample reports, etc. Sometimes a procedure manual includes form letters and form paragraphs as well as instructions for the mechanical make-up of letters. It is usually considered better practice to include such details in a correspondence manual or, where the number of persons concerned is small, to issue standard practice instruction sheets (bulletins) covering the mechanical make-up of letters and to compile form letters and form paragraphs in a separate binder.

In procedure manuals, the use of flow charts is desirable. They allow the reader to get the highlights of the procedure quite readily.

Procedure and instruction manuals can be broken down so that they cover a specific routine or a specific job such as the job of a stenographer, of a messenger, or of a routine, such as the handling of an invoice. An instruction manual should outline what is to be done as well as how it is to be done. It should describe the responsibilities of the job, cite examples of the action to take if certain facts are present, and if there is a "policy" upon which the instructions are based, it is well to have the policy precede or act as a foreword to the balance of the material.

EMPLOYEE HANDBOOKS.—Employee handbooks are in some instances called office manuals. They are probably the best known and most widely compiled of all manuals. Employee handbooks may contain information both of general and specific nature but, as a rule, they do not include specific job instructions or procedures.

A typical employee handbook would contain general information for employees both new and old, a statement of employee services, an explanation of what is expected in attendance and punctuality, the reporting of grievances, statement of holidays, vacation allowances, office hours, overtime provisions, designated paydays, etc.

Getting a Manual Program Started.—Any manual program will be successful only if it has top management approval. The preparation and the maintenance of manuals cost money. It is extremely difficult to show in dollars and cents just how this cost is offset by savings derived from the use of properly constructed and well-kept manuals. Even with top management backing, care must be exercised that a good manual program is not jeopardized by having manuals carry titles such as "Rules and Regulations for Employees," etc. These titles suggest domination rather than a spirit of cooperation.

Manuals should be a means of expressing interest on the part of management in making things more easily understood and more easily handled by employees, rather than making the employees feel they are working under a set of stringent laws and regulations.

The extent to which a company will want to go on a manual program will depend on the size of the organization, its interest in maintaining

standard practices, the variety of its paper work, etc. A company with an office planning or methods division will want a manual program in order that the methods agreed upon may be recorded for guidance and control in future check-ups. The company with a training program will find a manual system a valuable aid in training, and a company without a training program will find manuals at least a crutch on which employees may lean for help.

After a company has decided that it will have a manual program, someone should be placed in charge of the editorial staff. The size of the editorial staff will be dependent on the size of the organization and the extent to which it is expected that the manual program will be developed.

There are various ways in which materials can be gathered for the preparation of manuals. In some instances, there will be units in which someone will have the "know how" of the procedures in the unit. This person should be asked to write down the procedures and present them for editing to the editorial staff.

It is possible that manual information can be secured as a by-product of a job evaluation program. A job analyst can be asked to turn over to the editorial staff the procedures given by employees when describing their jobs to the job analyst.

The editorial staff can secure job or procedure information from the employees while they are at work.

Where a methods division or section is in existence, the procedures or methods they have agreed to or have placed in effect will be available for use in the manuals.

No matter what plan is used, the material should be subject to rewriting and editing. In every instance, both new and revised manuals should have the stamp of approval from the head of the department affected before the manuals are put into use.

In a small organization, only one manual should be started at a time, and it is not necessary that the entire manual be completed before releasing some of its parts. It has been found that manuals can be released a chapter at a time and that the material will be more easily absorbed.

In the preparation of any new manual, care must be exercised that only current practice is recorded. To forestall the inclusion of any obsolete or unapproved practices, it is necessary that the sections of the manual be passed upon by someone who is responsible for and familiar with the work being described.

Control of Revisions.—Manuals are seldom finished. Unless they are kept up to date they are dangerous and of little value. Someone should be made responsible for keeping them up to date. This duty can be assigned to the editorial staff which is responsible for the preparation of

new manuals. Records should be maintained showing the anticipated schedule of revisions. The frequency of revisions will depend on the types of manuals. It may be necessary to revise some of them quarterly, semi-annually, or at other intervals.

Revision material must be subjected to the same editorial inspection as the material for new manuals. Copies of outgoing instructions which affect manuals should be approved by and kept on file in the editorial office so that upon the next revision date, all changes made after the last revision may be included.

BULLETINS AS MANUAL COPY.—Where a standard practice bulletin system and a manual program are in use, copies of all standard practice bulletins should be retained at some centralized spot for use as “copy” at manual revision time.

The standard practice bulletins will, if properly written, contain many sections which can be taken from the bulletins and, without editorial changes, become parts of appropriate manuals.

Where bulletins are used as a source of material for manual revision, it will expedite the work if at the time a bulletin is issued, the copy retained by the manual editorial staff is marked to show what manuals are affected by the bulletin content.

The bulletin file of all recipients must be kept current. Cancelled or changed bulletins should be removed from the file on the basis of written instructions only. This also applies to those bulletins which have been incorporated in a manual.

Control of Distribution.—Approved lists should be compiled of those who are to receive each type of manual. Distribution of revisions, changes or new manuals should be made on the basis of the names appearing on the appropriate list.

Someone in each office or receiving point should be designated to receive revised manual pages and place them in their appropriate binders. If this is not done, the material delivered to manual holders may become misplaced, and thus the manual becomes obsolete. Too many people think they are interested in a manual program and get started on it only to find that one of the biggest jobs is to keep the manuals up to date. A manual revision program is something that requires constant follow-up by someone near the top management group, for it includes not only the revision of manual copy but improving the manual format, manner of distribution, and so forth, and last but not least, requires a periodic reporting to top management of the status of the manual program.

Summary.—It is not intended that the above discussion of manuals should comprise a blueprint of what manuals are needed and how they should be developed. It is hoped, however, that what has been said will have

stimulated the interest of the reader in the possibilities of a manuals program, and will indicate clearly the necessity for a careful analysis of the needs of his company, and perhaps suggest that it is part of a sound approach to the problem to select a company which has a well developed and smoothly functioning manuals program for a critical study to aid in fashioning a sound program for his company.

CHAPTER 24

SOURCES OF INFORMATION

Company Libraries

Purpose of Business Libraries.—The business library if properly organized and staffed can be the most valuable source of information in any company. The fact that there are hundreds of libraries operating in industrial and commercial organizations is evidence that they have proved their value.

In many companies, the need for a library is first felt when it is realized that valuable information and material is scattered in many departments under insufficient supervision and only occasionally used. There may be considerable duplication of material and effort because one department does not know what another has collected on a certain subject or what research has been done not only outside the company but also within. A library will centralize this information in the hands of skilled workers who know how to make it most effectively useful. Or a company may be fortunate enough to have a library-minded executive who realizes that quick access to information intelligently and regularly gathered by a library will do much to increase the effectiveness of all employees from the top to the bottom.

The company library can serve as the first approach to any problem. It can be the one place which has a record of all past experimentations and accomplishments. Researchers and specialists, by consulting the library before starting any new work, can find out what previous attempts along similar lines have been made both within the company and outside.

Once it has been decided to establish a library certain definite steps should be taken by the management of the company before the library can start operating.

The Place of the Library in the Organization Structure.—Basically the organization of a library should not differ from the organization of any department in a particular company. It should operate as a separate department with a financial set-up entirely aside from any other department. In most companies the library is found in one of three places in the organization: as a service department reporting to whoever has charge of the office services; as a branch of the research department; or as a separate unit responsible directly to an executive officer. Each company can best

determine where the library fits in its organization plan. It must be kept in mind that the library will be most accessible if it operates on a par with other expert services.

The Librarian.—When a company decides to establish a library it may take a person conversant with the subjects to be handled and give her the library training. Or it may select a trained librarian who will do everything possible to become familiar with the field to be served. Fortunate indeed is the company that finds itself in the ideal situation of having available a librarian with college and library training and who is familiar with the business of the company. Inasmuch as the technique of information gathering, filing, indexing and preserving material has become highly specialized, it is a grave initial mistake to start a library without trained personnel.

In addition to professional qualifications it is almost imperative for a successful business librarian to have certain personal characteristics. The person selected should be alert, resourceful, efficient, accurate, tactful, intensely interested in what is happening in the world, and capable of meeting the men and women in the office on their own ground. The rest of the library staff should be selected by the librarian. The amount of training and the educational requirements of the other staff members will depend upon the size and type of library and the availability of trained librarians or people familiar with the subjects covered by the library.

The Functions and Limitations of the Library.—Space, time, and expense necessarily limit the scope of each collection and it must be determined what should be constantly available in the library and what should be obtained from outside sources when the need arises. Each type of business has different requirements and added to these are special requirements sometimes little more than whims of interested executives. In addition to books, periodicals, clippings and special services concerning the business of the company and its allied interests, it may be decided to include company material such as statements of company policy and records of past experiences, annual reports, accounting audits and method surveys, leases, contracts, accounting and statistical reports, handbooks, manuals and selected correspondence. If it has been decided to collect and preserve company material it is well to consider the possibility of having the general correspondence files in the library, also, if they are not too extensive. This gives the librarian the chance to select material to be kept indefinitely and also gives first hand information as to what is going on in the company.

In some companies recreational libraries consisting of fiction and non-fiction are maintained as a part of the library. The company museum and archives may also be a part of the library. Some libraries conduct extensive reading and educational courses for company employees.

Should personal work be done for members of the company staff? Should work be done for outsiders? Libraries vary greatly in their policies on these two questions—from complete refusal to full service.

A decision should be made as to whether the library is to give only reference service which is primarily the location and rating of sources and the collection of facts, or if it will be expected to perform research work also. The true research function involves the interpretation of facts as well as the selection of them. If the library is expected to do research work then trained research workers should be added to the staff since the librarian will not as a rule have had the opportunity to acquire the greater special knowledge of the firm's business that research requires.

Space and Equipment.—The important points to consider are quiet location for purposes of study, convenience of access for the departments using the library most and the best lighting available. Adequate space for expansion should be provided. The furniture can be a combination of standard office and library equipment. Desks, chairs, tables and filing cabinets can be the same as used in the rest of the office. Open stacks for shelving books and magazines, catalog cabinets, and magazine and newspaper racks can be purchased from any manufacturer of library equipment. These manufacturers will be glad to send draftsmen to help plan and lay out the library. If metal furniture is used generally throughout the building, it should also be used for the library.

Library Operation.—With adequate resources and full cooperation of the management it now rests with the librarian to collect and organize the material so that desired information is available when needed, and to administer the library so that its clientele use and continue to use it. This involves four principal functions:

1. To collect the information which will be of use to the company.
2. To store the material collected in a readily accessible form.
3. To disseminate the information to the people in the organization.
4. To assist in every possible way in securing specific information when the need arises.

COLLECT INFORMATION OF USE TO COMPANY.—The material scattered in various departments must be collected and placed in the library. Duplicates and worthless material will have to be discarded. If it has been decided that company material is to be kept in the library, then this material will have to be gathered from the various departments and centralized in the library. A solid nucleus of books, pamphlets, periodicals and special services covering the field must be purchased. In building the collection it is wise to consult the users of the library and obtain suggestions and ideas from them. They should be encouraged to call to the attention of the library

material that they believe should be obtained. The librarian must constantly read and check book reviews, publishers' announcements, book lists, bibliographies, periodicals and newspapers for material of interest to the company. The librarian should know the important authors and subjects of interest to the company and must act immediately to obtain the material that will be timely and important.

STORE MATERIAL COLLECTED IN READILY ACCESSIBLE FORM.—The material in any library must be intelligently cataloged, classified, and arranged in order to be immediately available. There is no existing adequate system of classification or subject headings to fit the needs of most business libraries. The two classifications systems most widely adopted are the Dewey Decimal and Library of Congress systems. The tendency is to apply the classification systems to the library rather than to adapt the collection to the system. Most business libraries find it necessary to make their own subject heading lists. Such valuable indexes as the Industrial Arts Index and the Public Affairs Information Service may be used as guides in developing the subject headings. Each business has its own terminology which should be considered when assigning subject headings.

The key to the library is the catalog which usually consists of subject, author, and title entries arranged alphabetically. The more carefully the subject matter in books and pamphlets is analyzed and cataloged, the easier it will be for the library staff to locate material when it is needed. A good cataloger requires training not only in the science and art of cataloging, but in the subject to be cataloged as well. It is often permissible for business libraries to break general cataloging rules, if consistency is maintained.

In most libraries books are arranged on shelves according to the classification system used and pamphlets and clippings are filed by subject headings in vertical files. However, some libraries classify the pamphlets and file them with the books on the shelves. As a rule, books and pamphlets are cataloged and clippings are not.

Special indexes and bibliographies are often compiled in order to facilitate the location of certain material. For example, some libraries index magazines as soon as they are received. Other libraries feel that it is preferable to clip the pertinent articles and file them in vertical files by subject.

DISSEMINATE INFORMATION TO PEOPLE IN ORGANIZATION.—A company library can and should go to patrons instead of the patrons coming to it as in public libraries. This is accomplished in various ways:

1. Regular routing of periodicals, newspapers, special services, and company material (if included in the library) to individuals in the company.
2. Circulation of current magazine and newspaper articles and books on requested subjects.

3. Issuance of library bulletins which may include reviews, abstracts, or just listings of current material received in the library.
4. Notifying interested people of current material by means of library notices, personal memos, or orally.

The executives, department heads, and other employees must be encouraged to tell the library what their needs are so that the proper material can be routed to them. Library forms can be sent out at intervals soliciting this information from members of the organization.

Frequent interviews with the various people in the organization and careful observation of the company's activities are necessary if the librarian is to visualize the informational needs of the company in advance.

ASSIST IN SECURING SPECIFIC INFORMATION WHEN NEED ARISES.—Specific requests for information are usually made by telephone, memoranda, or in person. Since the fundamental purpose of the library is to catalog intelligently and to arrange the material so that it will be quickly available when desired, the answering of reference questions usually takes precedence over all other work in the library. The librarian will often need to decide the relative importance of the different demands. Many of the fact-seeking questions can be answered in a matter of minutes, while the assembling of material on some subjects may take days. The latter is especially true in libraries where research work as well as reference work is done.

The library staff must be familiar with all its sources of information in order to give complete and quick reference service. The catalog, published bibliographies and indexes such as the Industrial Arts Index and Public Affairs Information Service, special indexes and bibliographies compiled by the library, books, pamphlets, clippings, and experts both within and outside of the company, will all have to be consulted at times before the answer to a question is found. The librarian must know the outside sources from which help can be secured—other libraries both public and special, trade associations, government bureaus, educational associations and institutions, and people who are recognized as authorities on various subjects.

Valuable information can be secured from the Special Libraries Association (whose headquarters are in New York) concerning the establishing of business libraries. Every business library already established should have a membership in this Association.

Supplementary References

In addition to the up-to-date professional information on office methods, procedures, and equipment that can be secured from office engineering organizations, association services and libraries, there are several other sources of information and assistance that should not be overlooked.

The information and assistance that is freely given by representatives and salesmen of office machines, equipment, fixtures, forms, etc., can be utilized to great advantage. The success of these representatives depends largely upon a wide knowledge of the uses to which their products are most adaptable. They not only have the training but also have the advantage of observing their own products, and those of other manufacturers, being used in various systems and situations throughout their field of activity. Office managers, methods-and-procedure men and supervisors can profit by such information. The purchase of a piece of equipment such as a duplicating machine might be considered for only one or two particular needs, but the different representatives of such machines can often suggest other uses to which the machine can be put, that will aid in justifying its cost by reducing expenses, simplifying methods or increasing efficiency.

Also, these representatives have the opportunity of seeing worked out in actual practice the many short-cuts, rearrangements, "gadgets," etc., perfected over a wide area by others to meet a need or situation seemingly "peculiar" to their own work. Many of these improvements might never become known generally except for the interested representative who learns of them and passes them on to other clients or prospective customers when he calls upon them. The fact that this cooperation may be motivated by self-interest really accentuates its value in light of the ever-present need of building goodwill. In developing a new form, or reordering an old one, if the sales representative is given full information and permitted to study the flow chart covering other phases of the office routine, increased efficiency or a saving of time often can be realized.

House organs and trade publications furnish another valuable source of information and ideas. In some organizations these papers are routed to various officials and departments as a routine procedure; but perhaps they can be put to more profitable use when a competent reading clerk or secretary is given the part-time job of scanning through them for worthwhile information and usable ideas. They should then be indexed, cross-referenced, and forwarded to the respective officials or department heads for their attention.

In one's own organization, a careful study of what has been done before can be useful in considering changes in policy or routine for improvement in goodwill, efficiency, or production. When changes are made in forms, methods, or routines, a record should be kept for future reference and guidance. Studying these past improvements serves to stimulate thought and encourages greater efforts.

Finally, individuals responsible for office procedures and the training and welfare of personnel should find that a free exchange of ideas between themselves and members of other organizations is profitable to all concerned.

Association Services and Activities

"Associations" may be divided roughly into four major groupings, as follows:

1. Trade Associations—Business competitors in the same industry. Examples: Aeronautical Chamber of Commerce, American Hardware Manufacturers' Association, Radio Manufacturers' Association, National Metal Trades' Association.
2. Business Associations—Not trade associations, but composed largely of businessmen. Examples: American Arbitration Association, Associated State Chambers of Commerce, Committee for Economic Development.
3. Professional Associations—Individuals engaged in the same calling, but whose business or trade association cuts across all lines. Examples: National Office Management Association, American Chemical Society, Optical Society of America, Society of Photographic Illustrators.
4. Other Associations—Which fall into none of the classifications above.
 - (a) Service Clubs. Examples: Kiwanis, Rotary, Optimists.
 - (b) Safety Associations. Examples: Air Hygiene Foundation of America, Institute of Traffic Engineers, National Fire Protection Association.
 - (c) Military Associations. Examples: American Legion, Navy League, Veterans of Foreign Wars.
 - (d) Racial Associations. Example: National Association for the Advancement of Colored People.
 - (e) Tax Problems Associations. Examples: National Conferences of Real Estate Taxpayers, National Security League, Social Science Research Council.
 - (f) Chambers of Commerce, Civic Associations, Consumer Associations, Foreign Relations Associations, Foundations, Labor Associations, Women's Associations, Stock Exchanges.

These groups have evolved in modern times from recognizable beginnings dating back to the Middle Ages. The guilds of artisans, organized for the purpose of training and controlling workers in the various crafts, were pretty clearly the progenitors of the trade and professional society as we know it today. Tracing through the "club and coffee house period" (when the New York Stock Exchange was born) we come to the Civil War period in this country. Very few associations as we now know them existed before 1860. National associations were preceded, even before 1800, by local associations of one kind or another. The present Chamber of Commerce

of the State of New York was organized in 1768, when there were already several informal local associations of traders in Boston, New York, and Philadelphia. The present Board of Underwriters of New York, formerly the National Board of Marine Underwriters, began in 1820. Between 1820 and 1900, national and interstate associations grew to approximately 100 in number; by 1920 there were 1,000; in 1941 there were 3,000; today there are about 3,100.

A relatively small number of associations provide members with all the following seventeen principal types of services, or engage in all four primary activities.

The services and activities most frequently encountered fall into three general classes, which are set forth below:

I. TECHNICAL AND SCIENTIFIC

1. Labor Relations Information. Information and aid in all forms of employer-employee problems confronting members. Wage and hour studies. Methods of hiring, promoting, training, pensioning. Group insurance. Recreation facilities. Safety, placement (see I 10). Educational and financial manuals and reports for employees. Contacts with unions. Profit sharing programs.
2. Government Relations—Legislative Bulletin. Reporting on proposed laws and government agency activity. Drafting model laws. Representing members before legislative bodies. Taxation studies. Cooperating with government statistical and technical bureaus.
3. Public Relations. Educational pamphlets, publications, use of press, radio, pulpit, books, campaigns to foster public interest.
4. Industrial Research. To improve members' products or services. New uses for old products; new product development. Technical laboratory (operation or cooperation).
5. Promotion. Exhibits—exhibitions. Cooperative advertising campaigns. Coordination of members' individual advertising and publicity procedures. Awards—contests. Studies of the best use of advertising media.
6. Simplification—Standardization. Encouraging members to agree upon uniform standards of quality and performance. Advocating reduction in number and variety of product and product-type and size. Grading and certification.
7. Statistical Services. Providing current information on such items as production, orders, shipment, sales, inventories, prices, exports, imports, employment trends, rates of turnover. Special surveys, tax, insurance, financial data. (Practically all associations distribute some secondary—republished—statistics; few compile their own original work, or break it down by type and district.)

8. Ethics and Practices. Including business standards, trade practices, unfair competition activities. Endeavors to eliminate unethical practices in advertising, distribution (defamation of competitors, imitation of trade marks, style piracy, interference with contractual relations, repudiation of contracts, blacklists, rebates, unwarranted return of goods, fake fire sales, bankruptcy, frauds, and the like). Trade practice agreements.
9. Accounting Guidance. Uniform accounting methods as an aid to management. Budgeting. Financial reports to the public. Basic cost studies. Manuals. Standard forms. Field service by expert accountants.
10. Employment Bureau.

II. EDUCATIONAL

1. Conferences—conventions.
2. Meetings.
3. Exhibitions.
4. Bulletins.
5. Information Pool. Summaries of latest developments in the field. Magazines. Technical reports. Annuals. "Proceedings." Textbooks. Handbooks.

III. COMMERCIAL

1. Field or Branch Office Services. Chapter offices. Washington office. Regular visits by officers and experts on all association matters.
2. Commercial Research. Economic surveys; trade inquiries. Coordination of members' research. Market surveys. Consumer research; opinion research.
3. Arbitration. Settlement of controversies. Cooperation with American Arbitration Association.
4. Credit Information Service. Credit reports. Collection services. Studies on allowances, discounts, etc.
5. Traffic Problem Guidance (including packing and shipping studies, and compiling of freight rate books). Studies of uniform lading documents, shipping practices, comparison of modes of transportation, excise levies, and the like.
6. Foreign Trade Service. Current data on foreign tariffs, reciprocal trade agreements, shipping regulations, rates and dues. Cooperation with government agencies on surveys of foreign trade problems.

Comparison of the number of associations in existence at the various dates enumerated earlier indicates that the point of saturation may have been

approached, if not actually reached. It is logical to assume that the number of associations will remain relatively constant excepting for possible growth in the population of the country or the possible combination of various associations in similar fields, in which latter case we might expect the total number of associations even to decline from its present level.

22 Basic Services Rendered by Associations	→	↓	22 Basic Services Rendered by Associations																					
			Bulletins - Publications	Conferences	Meetings	Information - Consultation	Research - General	Educational Activity	Government - Legislative	Statistical	Simplification - Standards	Foreign Contact	Accounting Guidance	Ethical Standards	Labor Relations Guidance	Employment Bureau	Exhibitions	Field Service	Public Relations Guidance	Promotion	Research (Industrial)	Arbitration	Credit Information	Traffic Problem Help
Nat'l Fed. Bus. and Pr. Wom.			X		X		X		X									X	X					1
Nat'l Mgmt. Council				X			X																	1
The Public Affairs Comm.																								1
Amer. Interprof. Assoc.																								2
Inst. Wom. Prof. Relat.						X		X		X								X			X			2
Amer. Trade Assoc. Exec.																								3
Amer. Educ. Fellowship																								4
Controllers' Inst. of Amer.								X	X		X		X											4
Amer. Stds. Assoc.																								5
Assoc. Amer. Colleges									X															5
Nat'l Indus. Conf. Bd.							X																	5
Amer. Inst. of Accts.																								6
Amer. Soc. Mech. Eng.							X											X			X			6
Amer. Voca. Assoc.									X															6
Life Office Mgt. Assoc.										X	X		X		X									6
Nat'l Assoc. Cost Ac.								X																7
Nat'l Educ. Assoc.																		X						7
Amer. Mgmt. Assoc.									X															11
Nat'l Office Mgmt. Assoc.																								15
Nat'l Assoc. of Mf'rs																								17

Figure 158. Association Services

Those interested in the management of offices will find the associations of our country an invaluable source of help and information in problem-solving. In order to use an association as a source, it is necessary only to fit the inquiry into the "type of service" enumerated previously and then, using the chart (Figure 158) as a guide, to refer to the association indicated as providing the service in question. If a more exhaustive list of associations is desired, reference is indicated to "Trade and Professional Associations of the

United States," which was used as a source for much of the factual matter in this section, and which is available at 70¢ from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

In the course of preparing the Handbook, a survey of certain selected associations was made with the object of establishing a point of view from which a fairly comparative picture of association activity might be obtained. A chart indicating the services given by several of these organizations is shown in Figure 158. Solid blocks indicate services listed in published works of the association; crosses indicate services contemplated.

BIBLIOGRAPHY

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- "Public Administration Organizations," Public Administration Clearing House, Chicago, Ill.
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APPENDICES



APPENDIX A

A CHECK LIST FOR OFFICE MANAGEMENT FUNCTIONS

The following check list has been designed to furnish the reader a yardstick with which he can measure the extent of good management in his office and to provide him with a source of ideas for a complete examination of any one of his office management functions. It has been organized to correspond with the Parts of this volume. As the reader studies this list he should apply it to his own company's practices. An affirmative answer would seem to indicate his satisfaction with the function under scrutiny. However, before answering any of these questions, the reader should ask himself:

1. Do I know all the details of the operation of the function in question?
2. Is the answer actually "Yes," or am I erroneously assuming that actual practice conforms with whatever instructions may have been issued?
3. If my answer is "No," am I entirely familiar with the situation and satisfied that the practice has no application in my company?

Properly used, this list should point the way to many improvements in the average office. The techniques for finding answers to many of these questions are covered in Chapters 17 and 23.

PART I. THE ORGANIZATION ELEMENT

1. Is the control of all clerical activities centralized?
2. Has there been adequate recognition of the office management function in the organization?
3. Are there one or more office executives with specific responsibility for the various aspects of (a) office personnel, (b) office methods, (c) office equipment or facilities?
4. Is the organizational level of the office manager as high as that of other departmental executives?
5. Are the operating duties and the staff advisory duties of the office manager defined accurately and properly publicized within the company?
6. Is the office manager used as a staff specialist in the study of clerical work, wherever it is performed?
7. Is there an organization chart? Can it be found when wanted?

8. Is it revised whenever organization changes are made? Is it shown to the rank and file?
9. Is there a write-up describing the duties and responsibilities of each unit of the office organization?
10. Are the office service activities centralized and does the office manager have charge of them either directly or indirectly?
11. Does the office manager review all requisitions for forms, supplies, furniture, and equipment?

PART II. THE HUMAN ELEMENT

PERSONNEL

1. Are the office personnel activities centralized and are they administered by an office manager (even if ultimate control lies with the Personnel Director)?
2. Are the personnel requirements for each unit budgeted according to the anticipated volume of work?
3. Has a good job analysis of each office job been made? Has this job analysis been made in conjunction with a methods study?
4. Has a written record of the duties, responsibilities, and requirements of each job been made? (Job description).
5. Has a job specification for each job been made? (A written record of the requirements sought in the individual worker for a given job.)
6. Is the importance of job analyses, job descriptions, and job specifications and their differences understood?
7. Are the best sources of supply known for the types of employees in the organization? Is the performance of these sources checked frequently?
8. Are new employees recruited with the aid of present personnel?
9. When interviewees call, are they seen as promptly as prospective customers? (Or are they kept waiting in the anteroom for interminable periods?)
10. Is a formal testing program employed for new applicants?
11. Have standard work-sample tests been devised, validated, and applied?
12. Have the merits of aptitude and interest tests been examined?
13. Is a file of applications and test results of both accepted *and* rejected employees maintained?
14. Are successful applicants required to take a medical examination?
15. Is there a standard induction program designed to introduce the new employee to his job, his fellow-employees, and his company?
16. Is there an organized method of job training?
17. Does it cover new employees, advancement for present rank-and-file employees, and the development of potential executives?
18. Are complete records of employee performances maintained?
19. Is there an organized plan of employee rating?

20. If the supervisors rate the employees, is their judgment carefully reviewed?
21. Are the employees informed of the results of each rating? Are they encouraged and actively aided to overcome apparent deficiencies?
22. Are the ratings timed so that no supervisor must perform a large number of ratings at one sitting?
23. Is there an intelligent control of absenteeism and tardiness? Are those employees who maintain perfect records rewarded, or are offenders and non-offenders treated exactly alike?
24. Do the supervisors actually have the power to accept or reject employees presented to them by the Personnel Department?
25. Are transfers used to attempt to save those who might ordinarily be discharged because of lack of interest in their work, disagreements with supervisors, etc.?
26. Is the transfer used as a method of training for more important positions?
27. Are there promotions from within the organization?
28. Is there a carefully planned line of promotion from all basic positions?
29. Are employees consciously trained for promotion?
30. When promotions are made, are employees favored who have reached the maximum limits of their salary ranges?
31. Are capable understudies being developed for all key positions?
32. Does someone in authority (office or personnel manager) interview all employees who are terminating, whatever the cause?
33. Are the reasons for quits, discharges, leaves of absence tabulated and analyzed?
34. Is the power to fire concentrated in the office or personnel manager only?
35. Is there any method for discovering causes of dissatisfaction?
36. Does the turnover percentage compare favorably or unfavorably with those of similar offices?
37. Are office policies, rules, and regulations published for the benefit of all employees?
38. Are they explained as well as stated?
39. Is the practice followed of enforcing all rules and regulations or removing from the manual those not enforced?
40. Do all employees have the right of appeal to a source higher than their immediate supervisor without prejudice, and do they know they have it?
41. Is there a definite procedure established for handling grievances?
42. Are your rights and responsibilities as an employer known should an attempt be made to organize the office into a union?
43. Are there within the executive organization three or four men capable of serving as the company committee in collective bargaining negotiations?

44. Is it known what their background should be and what specialized knowledge they must possess?
45. Are the details of the work of the office known, so that they can be discussed intelligently with union representatives?
46. Have these details been standardized and written up?
47. Do all the employees know the history of the company for which they work, its products, its major policies?
48. Do the employees know the part that their work plays in the building of the product and the progress of the company?
49. Are incentives (non-financial or financial) used to motivate the employees?
50. Just how much is known about the morale of the office? Are there known means of measurement?
51. Does the appearance and equipment of the office encourage good morale?
52. Which of the employee Services mentioned in Part II, Chapters 5, 6 and 10 are now encouraged? Of those not engaged in, which might be most beneficial to the employees and to the company?
53. Has a complete, scientific study of the comparative value of all jobs in the company been made?
54. Was this study made on the basis of job content, rather than job title?
55. Have your rate ranges been matched against these jobs?
56. Could it be proven to a labor union that, job for job, your wage rates are right?
57. Are all positions in the company classified according to the grade of work performed regardless of departmental lines?
58. Are comparable wages and salaries paid for comparable work throughout the office?
59. Are community rates checked regularly to be sure the market rates are being paid for jobs in the office?
60. Are financial incentives offered for better than average performance, to executives, supervisory employees, clerical employees?
61. Has the use of employee rating as a financial incentive been considered?
62. If a plan of financial incentives is being used, are the benefits received commensurate with its cost of operation?
63. Would the application of group incentives serve to increase production better than an individual incentive plan?

SUPERVISION

1. Are functions and responsibilities clearly defined for each division and section and for individual executives?
2. Are lines of authority clear-cut and direct?
3. Does each individual know to whom he reports and who reports to him?

4. Do all supervisors know they are expected to train someone in their departments to "carry on" in the event of illness or promotion?
5. Are they checked to see that this training is performed?
6. Are the supervisors encouraged to do their own thinking and make their own decisions? Are they held responsible for results and discouraged from seeking advice continually?
7. Is there an established plan for the selection and training of supervisory personnel?
8. What qualities above length of service and technical skill are demanded in employees who are being groomed for promotion?
9. Are the records necessary to judge such employees when they are up for consideration as supervisory material maintained?

PART III. THE PHYSICAL ELEMENT

1. Does the present office location meet your needs in the most satisfactory way?
2. Does it make adequate provision for periodic peak loads?
3. Is there suitable provision for future expansion?
4. Does the present layout contribute to a smooth forward flow of work with but short moves between independent steps in the procedure?
5. Is undue congestion or delay at any point prevented by your layout?
6. Are space budgets established by classes of office activity (executive — x ft. per employee; semi-executive — y ft. per employee; clerical — z ft. per employee)?
7. Are ample service facilities provided for employees?
8. Are drinking fountains with bubbler nozzles or paper drinking cups provided in adequate numbers?
9. Are separate rooms or space provided for each sex for hanging hats and wraps?
10. Are there adequate toilet facilities for each sex?
11. In the toilet rooms is there one seat and one wash bowl for every 15 persons?
12. Is there a large mirror in every women's toilet room that can be used by several persons at one time? (Location of this mirror away from wash bowls will eliminate frequent clogging of drains. A shelf must be provided under the mirror for employees' handbags and cosmetics.)
13. Have the lighting results been measured recently?
14. Does each working unit receive the quantity of light it requires to perform its duties efficiently? (Compare your light levels with the recognized standards.)
15. Has glare been eliminated? (From sunlight, by the use of venetian blinds, etc.; from artificial lighting, by the use of the necessary baffles and louvres.)

16. Has the possible effect of color on your illuminating problems been studied?
17. Is maintenance of fixtures so scheduled that maximum lighting efficiency will result?
18. Is there a system of artificial ventilation that provides frequent changes of air without drafts?
19. Have the possibilities of controlling the humidity of the atmosphere in the office been studied?
20. Does the system of heating provide for uniform winter temperatures approximating 68-70 degrees?
21. Has any attempt been made to reduce machine noises in large work rooms?
22. Does the ventilating system allow windows to be closed so as to exclude outside noises?
23. Have the possibilities been investigated of shielding individual machines which are noisy?

PART IV. THE OPERATION ELEMENT

WORKING TOOLS

1. Is the office furniture selected on the basis of the requirements of the jobs on which it is to be used?
2. Is it adequate for the purposes intended, as to size (neither too large nor too small), as to functional arrangement (interior layout made to fit the job), and as to physical condition?
3. Are desks used on similar operations standardized as to size and interior arrangements?
4. Is the best office machine for the purpose being used in every case?
5. What is the machine usage ratio (how much idle time accumulates on each machine)?
6. Can provision be made to keep the office machines busy a larger proportion of the time?
7. Are machines being used in every operation where it would be profitable to do so?
8. Is the machinery in use in every case of modern design and character?
9. Are the "trade-in" policies of the maker of each machine in use known?
10. When machines are purchased, are the vendor's statements accepted? If not, how are they verified?
11. When machines are purchased which are new and unfamiliar, are demonstrations using work samples which are typical of your office procedures insisted upon?
12. Has every machine operator been thoroughly trained so that each machine can be used to the fullest possible extent?

13. Are the machine operators checked frequently to see that their speed is maintained and their work patterns remain standardized?
14. Are suggestions encouraged from machine operators as to how their procedures may be simplified and shortened?
15. Have standard maintenance schedules been established for all office machines which require them?
16. Are there enough machines to warrant hiring a maintenance mechanic?
17. Are supplies issued upon requisition only?
18. Are only specified persons authorized to sign these requisitions?
19. Is there a proper quantity and variety of supplies to insure that office operations will not be held up?
20. Is there a stock inventory plan?
21. Does it include an order point before stock is exhausted so that a new supply may be ordered?
22. Is this order point checked frequently with changing market conditions so that stock never runs short?
23. Is all stock (except reserve stock) of one item in the same place in your stockroom?
24. Are there various sizes of bins and various shelf spacings to permit maximum usage of storage areas?
25. Are heavy bulky items placed on the lowest shelves?
26. When necessary, are special supplies stored so as to avoid loss through dampness, heat, falling, and other hazards?
27. Are supplies protected against dust by being wrapped in small packages with only a small quantity unwrapped?
28. Have definite specifications been established to govern all purchases?
29. Do all orders clear through the purchasing department?
30. Are tests and comparisons made upon receipt of materials bought on specification?
31. Does the purchasing, receiving and payment procedure permit taking full advantage of time discounts?
32. Can all forms be cut from standard sheets of paper without waste?
33. Are they of proper size for the operation?
34. Is the paper of the proper quality for the information it carries?
35. Is the paper suitable for the writing medium that is to be used—pen, pencil, or machine?
36. If a color scheme is used, is it necessary?
37. Is there a uniformity of typography on all forms?
38. Have the forms used throughout the business been studied as a whole?
39. Has approval and purchase of forms been centralized in one person?
40. Does the central form authority inquire periodically into the necessity for continuing the forms in use?

41. Is there an active routine for keeping track of suggestions for improvement of forms?
42. In re-ordering forms, are they grouped to decrease printing costs?
43. Except under exceptional circumstances, is a maximum of only six months' supply of a form ordered at once?
44. Is the purpose of each form clear from the heading?
45. If the form is to be filled in on a typewriter, is typing space followed both horizontally and vertically?
46. Is the information most frequently needed or by which the form is filed, located at the top?
47. Is the information on the form in the same order in which it appears on the form from which it is taken?
48. Do the questions on the form unmistakably indicate the information desired?
49. Has all recurring information been printed so that only the variables will be filled in?
50. Does it bear a form number?
51. If appropriate, are there "from" and "to" designations, a routing list, routing instructions, or disposition directions?
52. Which of the forms could be printed profitably within the organization?
53. Have the advantages and disadvantages of contract printing versus job printing of the office forms been studied?

METHODS AND PROCEDURES

1. Has each operation performed been subjected to a detailed analysis to determine whether there is a real need for it?
2. Can any operations now performed be done more advantageously by outside firms?
3. Can any operations be combined with others and costs reduced?
4. Has lost time between individual steps in procedures been eliminated?
5. Have all procedures been designed to fit only routine cases rather than to include all exceptional cases?
6. Has proper provision been made for handling exceptional cases?
7. Is there an up-to-date diagram showing the flow of work?
8. Is each operation performed so as to facilitate related operations?
9. Are all employees who perform routine or machine operations provided with written instructions as to the best way of doing the work?
10. Have definite standards of performance been set for all positions whose production is measurable?
11. Has the work been so simplified and standardized that the tasks can be performed by employees of average ability?
12. Does the organization include an individual or a group whose responsibility it is to study the procedures, to keep abreast of improvements and

innovations in mechanical equipment, and to study the application of these improvements to the operations?

13. Are there standard practice instructions covering each operation standardized?
14. Is there an office rule book?
15. Is there a well-constructed office manual describing all routines and the manner of handling each kind of work and its relation to other work?
16. Are there well-planned provisions for handling peaks of work?
17. Are peaks forecast from such indicators as incoming mail or orders, or from experience?
18. Is overtime work avoided and, if not, how is it controlled?
19. Can graphic methods be utilized to compare actual with planned production?
20. Is it known what force is required for stated volumes of work?
21. Have rush jobs been eliminated so far as is possible?
22. Have all regularly scheduled and special reports been studied with a view to eliminating as many as possible?
23. Have delays in work been eliminated?

STANDARDIZATION, PLANNING, AND SCHEDULING

1. Is the office work functionalized as completely as is practical; typing done by typists, calculating by calculating machine operators?
2. Does the office manager set performance standards, assign tasks, and control production?
3. Have the peak periods in the office been studied? When do they occur? What causes them? Can the work load be shifted to level them off?
4. Are normal, routine items separated from special items (rush or involved items)?
5. Are there periods of inactivity at certain desks during the day due to a clogging of the work at other points in the office?
6. After schedules for the office work are established, are controls established which will call attention to failures in the planned schedule?

OFFICE SERVICES

1. Is as much work done in a centralized stenographic department as organization conditions will allow?
2. Is the stenographic department used for routine day-to-day work, not only for peak loads and vacation loads?
3. Is the work of each operator measured?
4. Are there separate standards of performance for such work classifications as typing, addressing envelopes, tabular work, machine transcription, stenographic transcription, etc.

5. Are production reports showing production and unit cost of each classification of work maintained?
6. Can a wage incentive plan based upon established standards be used?
7. Are there established standards of selection for stenographic section workers?
8. Is there a training program for new workers?
9. Are there manuals for dictators and transcribers?
10. Is there some plan by which dictators' faults are noted and called to their attention?
11. Are costs charged back to the departments served?
12. Does the stenographic section routine encourage the use of form letters and form paragraphs wherever possible?
13. Are there established standards of spacing and of the mechanical make-up of letters?
14. Are finished letters reviewed for spacing, appearance, quality of typing, freedom from erasures, typographical errors?
15. Are finished letters examined for clarity, freedom from stereotyped phrases, quality of composition and grammatical construction, and verbosity?
16. Is centralized control of all filing maintained?
17. Is physical centralization introduced wherever possible?
18. Have all files been examined to eliminate the maintenance of duplicate material wherever possible?
19. Is there a list or a chart showing the location of files?
20. Are files neatly and clearly labeled?
21. Is there a workable "out" system?
22. Are the most accessible file drawers used for files most frequently referred to?
23. Is the filing production maintained so that work does not pile up?
24. Is filing production measured and are standards set for various classes of material?
25. Is each drawer of each file cabinet equally filled?
26. Is there sufficient space for future expansion?
27. Examine 1,000 pieces of filing for accuracy. There should be fewer than 10 errors in the thousand.
28. Examine the contents of one file drawer. Were all of these papers worth filing?
29. Is it the practice to mark the retention period on all material before it is sent to the files?
30. Are the filing systems simplified to the greatest extent?
31. Is each file clerk made responsible for a certain section of the filing?
32. Are new file clerks adequately trained?

33. Has a definite retention period been established for all classes of office records?
34. Is this retention period maintained and obsolete material destroyed?
35. Is some one assigned to police this matter?
36. Has microfilming been investigated to determine whether money can be saved by using it for those records which must be maintained either permanently or for long periods of time?
37. Is the supervision of messengers centralized?
38. Are messengers hired and trained so that future promotion to the clerical force is possible?
39. Are there regularly scheduled messenger trips throughout the office?
40. Have the needs of the office been studied to determine the optimum frequency of these trips?
41. Are the messengers checked regularly as to whether collections and deliveries are made at each point as scheduled?
42. Whenever practicable is sorting done en route, in pouches or carts?
43. Are there written instructions for the operation of the messenger service?
44. Have special messenger trips outside the building been reduced to a minimum?
45. Are all the reproduction facilities centralized?
46. Have the reproduction costs for each process been studied to determine the most economical method of producing each kind of work?
47. Have the methods and costs been compared with those of other companies handling the same volume of work?
48. Is the duplicating equipment in perfect mechanical shape and as modern in design as is necessary to produce the work efficiently?
49. Is the duplicating work scheduled so as to avoid peak loads?
50. Are forceful department heads allowed to upset schedules by "squeezing" in their work?
51. Is the cost of work done charged back to each department?
52. Is the reception room well lighted and is reading matter provided for visitors?
53. Is the advertising value of the reception room utilized to its fullest advantage?
54. Are the information clerks able to answer intelligently any questions which fall within the scope of their work?
55. Is there an established company policy that guests will not be kept waiting a long time without some sort of information as to when they can be seen?
56. Are relief receptionists provided on regular schedules?
57. Whenever appropriate, is the reception clerk supplied with clerical work so that idle time may be used?

58. Are job-seekers handled with the same promptness and courtesy that is accorded customers?
59. Is there a rough sorting in the mail room before opening, between mail that needs prompt handling and other mail?
60. Is the money mail sorted separately upon opening?
61. Is all mail time-stamped when received?
62. Are the mail readers and sorters sufficiently familiar with the company activities to perform their jobs intelligently?
63. Are they kept informed of new company activities, departments, individuals, or products?
64. Is mail from branch offices sent in envelopes that can be easily distinguished and sorted?
65. Is all outgoing mail handled through one mail room?
66. Is the mail room adequately equipped with mailing machines for the volume and kind of work passing through it?
67. Are data as to time of outgoing mails and as to postal regulations distributed to employees?
68. Are departments encouraged to distribute the outgoing mail load by sending mail to the mailing department during the day?
69. Are window envelopes used for all letters possible?
70. Is mail for branches or other frequent destinations segregated and sent in one envelope each day?
71. Is all outgoing mail dispatched each day without fail?

PART V. THE CONTROL ELEMENT

MEASURING PERFORMANCE

1. Is work subdivided so as to take advantage of the principle of division of labor?
2. Have interruptions to work or workers been avoided?
3. Is work measured?
4. Is the production of each worker known and is it satisfactory?
5. Has all possible work been standardized?
6. Is all standardized work measured?
7. Are clerks kept on one job a sufficiently long time?
8. Are incompetent new workers dismissed as soon as adequate training methods reveal their incompetence?
9. Is work started promptly in the morning and after lunch?
10. Is work continued up to the end of the morning and afternoon working periods without undue time lost for stopping work?

APPENDIX B

PRODUCTION STATISTICS

It was intended to present in this Appendix a collection of scientifically determined production standards covering all phases of clerical activity for which standards had been set. While it was recognized that an output standard applicable in one concern could not be applied to the same work in a different concern, it was believed that such standards data might prove at least of informative value to many office executives in whose offices exact standards had not been developed.

A somewhat widespread investigation brought to light the fact that time-study standards existed in only a few of the concerns checked. It was then decided to gather such production statistics as might be available and to include them for whatever value they might have to the reader. The material here included could not easily be organized according to the production experience by types of clerical work in each company. Thus, the data are presented merely as a collection of experiences of the companies furnishing them. Variations in hours of work per day or week, rates of pay, use of incentives, volume of work and many other considerations must be kept in mind in examining these data. From the explanatory information furnished, it can be said that for the most part the average work day is seven hours with ten to thirty minutes allowed for rest periods and that in most cases straight day or weekly wages (which are in line with recent salary survey information) are paid. Where machines are used an effort has been made to indicate the kind of machines used. Those tasks which are manually performed are identified.

INVOICE SORTING AND TYPING

- Co. A Burroughs (Moon-Hopkins) 7,200 billing machine. Typing one item invoices—50 per hour. Typing multiple item invoices—35 per hour. Pre-posting invoice sort. Sorting customer invoices in alphabetical order according to customer and then date—570 per hour.
- Co. B In our Billing Department, where electromatic billing machines are used, our top operator at the moment is putting through approximately eighty invoices per day. The invoices include normal headings—name and address, credit terms, purchase order number, etc., and they average six lines of items, each line being approximately five inches long. I may say that we do not consider this to be a very good result when compared with performance in past years where old machines that were considered in-

ferior were being used and crack operators would produce between 100-125 invoices per day.

Co. C 5 items per bill—200 per day.

ADDRESSING ENVELOPES

	Jr.	Sr.
Co. A Typing three line, blocked, standard abbreviations, no end punctuation, from type lists	175-200 per hr.	250-300 per hr.
Co. B Handwriting addresses		
from penmanship	90-100 per hr.	
from ledger books	110-120 per hr.	
Co. C Typing addresses	166 per hr.	

CYLINDER TRANSCRIPTION

Co. A Jr. Transcribers (not more than 6 months service)	4- 6 cyl. per day
2nd Grade (6 months to 1 year service)	6- 8 cyl. per day
3rd Grade (1½ years to 2 years service)	10-12 cyl. per day
4th Grade (over 2 years service)	12-18 cyl. per day
Co. B	8-12 cyl. per day
Co. C	12-16 cyl. per day
Co. D Insurance Company (Average for 9 operators—Salary range \$133-\$233 month)....	22.4 cyl. per day
Co. E Average for 5 operators	8-12 cyl. per day

MACHINE CHECK WRITING

Remington Rand #125 bookkeeping machine. Writing checks and posting cash disbursements—29 per hour. Full name and address (3 lines) for insertion in window envelopes. Typing memo on stub if required, name, address, check number, date, discount, net and gross to proper distribution column.

MACHINE POSTING ACCOUNTS RECEIVABLE

- Co. A Remington Rand (Dalton) bookkeeping machine. Posting customer invoices to statements—350 per hour (copy enclosed). Customer's name and address is addressographed on the statement.
- Remington Rand #125 bookkeeping machine. Posting monthly balance of customer statements to Accounts Receivable ledger—200 per hour. Pick-up, date, debits, credits, new balance.
- Remington Rand #125 bookkeeping machine. Posting incoming checks to Accounts Receivable ledger—80 per hour. Typing name (very much abbreviated), pick-up, date, gross or A/R., new balance, proof, net and distribution with account number of other than Accounts Receivable.
- Co. B Postings—Accounts Receivable, Cash, Credits and Charges, 500 per day.

MACHINE POSTING VOUCHER REGISTER

- Co. A Remington Rand #125 bookkeeping machine. Posting vendor's remittance statement and voucher register—66 per hour. Vendor's name, address, terms, etc., addressographed on statement. This job is done

in two parts. We do not have the two parts measured separately. Posting the vendor's statement consists of pick-up, date, purchases, returns, balance, proof. Posting distribution to expense account cards consists of pick-up, name of vendor (very much abbreviated) account number, debit, credit, balance, proof.

KEY PUNCH AND VERIFYING

Co. A (80 column cards)	200 per hour
Co. B (80 column cards—average 66 holes, high-grade operators)	250-300 per hour
Co. C (80 column cards)	
punching	133 per hour
verifying	187 per hour

CORRESPONDENCE

Sorting500 pieces per hour
 Filing 75 pieces per hour—including checking charge out cards
 Lookups..... 15 pieces per hour—including preparation of charge out cards
 Filing cards, alphabetically—200-300 pieces per hour. Error factor 1/10-1/25 of 1%.
 Cards typewritten and pre-sorted.

PAYROLL OPERATIONS

These National Cash Register Payroll machines write the checks, stubs, journal sheets, post the earnings for the week, and also accumulate the earnings and withholding tax each week for the year.

The total number of items recorded by our 2 machines was 64,172, or an average of 32,086 per machine. This payroll was completed in 32 machine hours overall time, averaging 1002.5 operations per machine per hour.

We have 5 operators, each of whom will average 140 to 160 completed checks per hour during the actual operation. It is necessary that we show the pieces and rates, in addition to the total number of hours, on each check, and in some instances this runs as high as 8 items. Due to the fact that 3 records, as well as a check register, are printed at one operation, this is equivalent to approximately 192,000 machine impressions,—not counting the automatic dating, numbering and printing of the net amount on the checks.

We have 15 clerks on payroll and analysis. They also make average hourly rate reports and summary sheets for the bookkeeping department and handle Federal and State reports quarterly for Social Security. We have 5,017 employees on our weekly payroll. This is an average of 334 employees per clerk. We have 1 clerk using a Marchant Calculating machine who figures the earnings only for the 5,017 employees. (This operation includes multiplying the hours or pieces by the rate.) About 50% of the employees average 2 rates per person. This gives an hourly production of 157.

BILLING DEPT. TYPING

Foreign Invoices

	Actual Time	Std. Time		Occurrence	Allowance
Forms to Machine.....	4 @ 90	0.10	×	7	0.70
Type Heading—1st sheet.....	38 @ 95	1.00	×	1 (×2)	2.00
Type Heading—other sheets.....	14 @ 116	0.45	×	6	2.70
Examine Order.....	6 @ 90	0.15	×	12	1.80
Type Commodity.....		0.13	×	7 (×2)	1.82
Type Long Line Incl. "Item" (100 spcs.).....	16 @ 100	0.45	×	7 (×2)	6.30
Type Short Line Incl. "Item" (70 spcs.).....		0.35	×	31	10.85
3 Type "Dimensions" Note.....	35 @ 100	1.00	×	13 (×2)	26.00
Type "Order Overshipped" Note.....		0.13	×	5	0.65
Type "Packed In Carton" Note.....		0.13	×	1	0.13
Type "Forward" Note.....		0.08	×	6	0.48
Type Discount.....		0.08	×	7 (×2)	1.12
1 Type "Totals Brght. Forward" Note.....	15 @ 96	0.40			0.40
5 Type "Made In U. S. A." Note.....	30 @ 96	0.80			0.80
6 Type "Payable" Note.....	12 @ 105	0.35			0.35
8 Type "Certified" Note.....	14 @ 103	0.40			0.40
Discard yellow sheets.....	2 @ 90	0.05	×	7	0.14
4 Type "Total of Pcs." Note.....	20 @ 108	0.60			0.60
7 Type "Goods Sold" Note.....	25 @ 100	0.70			0.70
2 Figure Kilos.....	40 @ 90	1.00			1.00
Old Commodity.....		0.13	×	3 (×7)	2.73
Out Sheet.....	8 @ 90	0.20			0.20
					7 sheets 61.87
					8.8 per sheet

Check Study—Kelly—Single Sheet—8.65

BILLING DEPT. TYPING

Local Invoices

Standard Time (per each)

	Std.	Ratio of Occurrence	Actual Occurrence Counted	Resulting Average Time	Total Standard
Sold to.....	0.40				
Ship to.....	0.20				
Shipped From and Date.....	0.10				
Heading.....	0.30				
Commodity.....	0.13				
1st Long Line.....	0.30				
Old Commodity.....	0.15				
Discount.....	0.08				
Tear Off.....	0.10				
Clip and Dispose.....	0.20				
Examine Order.....	0.25				
Record Work.....	0.08				2.29
Time Common to Each Invoice					
Plus Allowances:					
Sold to—Long Lines.....	0.40	1/4	×77	30.8	
Snip to—Long Lines.....	0.20	1/2	×143	28.6	
Short Lines.....	0.23	1/16	×19	4.4	
Long Lines.....	0.30	1/1.5	×183	55.0	
Commodities.....	0.25	1/10	×31	7.8	
Old Commodities.....	0.13	1/10	×30	3.9	
Discounts.....	0.08	1/10	×31	2.5	
Figures and Part Nos.....	0.15	1/10	×31	4.7	
Notes per Line.....	0.15	3/1	×900	135.0	
Extra Copy (Insert).....	0.50	1/25	×12	6.0	
Erase and Correct.....	0.50	1/1	×300	150.0	
"No Price" Copy.....	0.25	1/25	×12	3.0	
PP and Ins.....	0.15	1/6	×53	8.1	
Type "Totals".....	0.08	1/1.9	×160	12.8	
Information.....	2.00	1/50	×6	12.0	
Total.....				464.6	1.54
Weighted Standard per Average Invoice.....				÷ 300	3.83

TABULATING DEPARTMENT STANDARD

Key Punching—Sales Cards (Invoices)

Make Ready, min. $.50 \div 50$	0.01 min.
Punch (43 holes) (@ 60/60) .....	.13 min.
Corrections: $0.25 \times 8 = 2.00 \div 100$ .....	.02 min.
Delays: $0.50 \times 4 = 2.00 \div 100$ .....	.02 min.
Make ready for return: $0.50 \div 50$ .....	.01 min.
	<u>.19 min.</u>
60/60 = 1.10 .....	.019 min.
Standard .....	.209 min.
Production	4.784 cards per hr.
Production	287 cards per hr.

(Verifying and/or punching
@ 6 to 7 per minute)

TABULATING DEPARTMENT STANDARD

Verify—Mechanical—Sales Cards—(Invoices)

Make ready min. $.50 \div 50$	0.01 min.
Verify (43 holes) (@ 60/60) .....	.16 min.
Mark error, etc. $.50 \times 2 = 1.00 \div 50$ .....	.02 min.
Make ready for return $.50 \div 50$ .....	.01 min.
	<u>.20 min.</u>
60/60 = 1.10 .....	.02 min.
Standard .....	.22 min.
Production	4.545 cards per hr.
Production	273 cards per hr.

(Verifying and/or punching) (@ 6 to 7 per minute)

TYPING OPERATIONS

	Keystrokes per Hour
Purchase Orders	8,000
Invoices	7,500
Stencils	5,250
Postal Cards	10,050
Letters (copy from work source)	11,630
Letters (Ediphone)	9,700

VERIFYING OPERATIONS

(Verifying typed work by reading)

Purchase Orders	23,334
Invoices	29,433
Letters	33,600

SORTING AND FILING OPERATIONS

Manual sort 7" x 8" invoices (numerical sorting by 6 to 8 digit folio number)	408 invoices per hour
Manual sort 3.5" x 6" invoices (numerical sorting by 2 digit ledger number)	3,080 invoices per hour
Manual sort 3.5" x 5" job tickets (numerical sorting by 5 digit job number)	682 tickets per hour
Manual sort 8.5" x 11" reports (numerical sorting by 5 digit check number)	528 reports per hour
Manual sort I.B.M. tabulating cards (alphabetical sort by name)	516 cards per hour
Savasort 3" x 4" cards (numerical sorting by 5 digit distribution code)	1,020 cards per hour
Savasort 4" x 7" invoice (alphabetical sorting by name)	1,250 invoices per hour
File 8.5" x 11" reports (numerical filing by 5 digit check number)	372 reports per hour
File I.B.M. tabulating cards (alphabetical by name) ..	200 cards per hour

HAND POSTING OPERATIONS

Post employees daily hours from time cards to payroll.	560 postings per hour
Post employees deductions to payroll.	560 postings per hour

GRAPHOTYPE AND ADDRESSOGRAPH OPERATIONS

Emboss name and address plates.	54 plates per hour
Addressograph bills, time cards, postal cards and envelopes.	1,326 units per hour
Addressograph listing of names (single column).	1,284 names per hour
Addressograph listing of names (double column).	702 names per hour

MECHANICAL BOOKKEEPING MACHINE OPERATIONS

(Burroughs Model A-13 bank)

Posting invoices to ledger cards.	240 ledger cards per hour
Posting balances to bills.	360 bills per hour

I.B.M. TABULATING OPERATIONS

(80-Column Equipment)

Keypunch cards (30 columns per card).	400 cards per hour
Verify cards (30 columns per card).	430 cards per hour
Machine sorting.	22,200 cards per hour
Machine collating.	18,300 cards per hour
Print tabulated summary.	6,000 cards per hour
Machine reproducing cards.	4,000 cards per hour
Machine interpreting cards.	2,880 cards per hour

COMPTOMETER OPERATIONS

Add down 4 digit figure.	2,970 figures per hour
Add across 4 digit figure.	2,857 figures per hour
Subtract down 4 digit from a 5 digit figure.	685 subtractions per hour
Subtract across 4 digit from a 5 digit figure.	670 subtractions per hour
Multiply 5 digit figure by 3 digit figure.	654 multiplications per hour
Divide 6 digit figure by 4 digit figure.	219 divisions per hour
Write down 4 digit figure.	701 figures per hour

The foregoing are expected production figures under our wage incentive plans at 100% efficiency. We have found that the average department not on wage incentives in our offices is about 50% efficient, and therefore produces only one-half the units.

PRODUCTION REQUIREMENTS FOR COMMON CLERICAL OPERATIONS

(Based on Standard Time Allowances—Number of Units to Be Produced per Hour)

	TYPE OF OPERATOR		
	Average	Good	Excellent
1. Type address on labels (from typewritten copy)...	125	141	159
2. Address envelopes by hand (from penmanship)....	98	111	124
3. Straight typing (keystroke count) (Does not include preparation time).....	12,200	13,786	15,494
4. Typing ledger sheets (credit accts. opened)	98	111	125
5. (Typing) fill-in follow-up form letters	82	93	104
6. Sort bills of lading into Sortograph "A" to "Z".....	1,200	1,356	1,524
7. Fine sort B/L "AA to ZZ"	857	968	1,088
8. File B/L into folder—by alphabet.....	140	158	178
9. Filing correspondence.....	115	130	146
10. Sort mail with Sortograph.....	231	261	293
11. Filing 3" x 5" cards by alphabet.....	187	211	237
12. Filing Addressograph stencils.....	273	308	347
13. Printing index cards and inserting.....	214	242	271
14. Tabbing Addressograph plates.....	600	678	762
15. Embossing Addressograph plates name and address ..	54	61	69
16. Post accounts on posting machine (bookkeeping) ..	214	242	271
17. Hand address envelopes from ledger books.....	118	133	150
18. Prepare envelopes for feeding through postal meter ..	4,950	5,594	6,287
19. Feed envelopes through postal meter machine.....	7,100	8,023	9,017
20. Check envelopes stamped on postal machine.....	4,950	5,594	6,287
21. Labeling envelopes.....	1,620	1,831	2,057

OFFICE PRODUCTION STATISTICS

	Per Day
Typing:	
15-line letters.....	65
Statements:	
11" x 17", 10 col.....	4
8½" x 11", 3 col. (form).....	24
Posting, adding and balancing:	
Avg. 3½ digits, amount only.....	335
Filing:	
Name or geographic.....	400 to 600
Subject material (read and classify).....	100 to 200
Telephone Calls:	
Order and trouble.....	115
Order.....	32
	147
Cashier:	
Customers and daily balancing.....	420
Opening account with deposit to guarantee payment of bill:	
With deposit.....	36
Without deposit.....	6
	42
Customers paying accounts:	
(Population 200,000)	
In person.....	52%
Mail.....	48
	100%
(Population 26,000)	
In person.....	82.5%
Mail.....	17.5
	100.0%
Key Punch Operator:	
Six weeks minimum period—20,000 accounts.	
Bonus—\$.50 per M after standard.	

PRODUCTION STATISTICS (MERCHANDISING CONCERN)

Operation	Unit of Measure	No. of Units
1. MAIL OPENING: In manually* opening envelopes, how many envelopes does the average mail clerk open per hour?	Env.	360
2. SORTING: What is the average rate of production per hour per clerk for the manual* sorting of: <ul style="list-style-type: none"> a. Correspondence and similar papers? (sheets not smaller than 5" X 8" or larger than 8½" X 14") b. Cards (3" X 5", 4" X 6", or 5" X 8")? 	Pieces Cards	Machine slitting remove correspondence from envelope and pin-up case Mailreader, sort by correspondents 569 1,194 Numerical sequence
3. FILING: What is the average number of pieces per hour per clerk for filing: <ul style="list-style-type: none"> (a) Correspondence and similar papers** (1) Filed unattached in open folders? (2) Filed attached to open folder? (b) Cards? 	Pieces Pieces Cards	Cabinet file by 1st 3 letters of customer's name 256 233 Open sides — strict alphabetical sequence
4. REPRODUCTION: (a) In reproduction by stencil (mimeograph): <ul style="list-style-type: none"> (1) What is the average number of stencils run per hour by one operator? (2) What is the average number of copies or impression run per hour by one operator? (3) Is the machine motor-driven? <input checked="" type="checkbox"/> or hand operated? _____ (b) In hectograph reproduction with a GELATIN medium: <ul style="list-style-type: none"> (1) What is the average number of masters run per hour by one operator? (2) What is the average number of copies or impressions run per hour by one operator? (3) Is the machine motor-driven? _____ or hand operated? _____ (c) In hectograph duplication with a SPIRIT medium: <ul style="list-style-type: none"> (1) What is the average number of masters run per hour by one operator? (2) What is the average number of copies or impressions run per hour by one operator? (3) Is the machine motor-driven? <input checked="" type="checkbox"/> or hand operated? _____ 	Stencils Impressions Masters Impressions Masters Impressions Masters Impressions	4.5 3,225 7 1,150
5. COLLATING: In manually collating approximately 8½" X 11" sheets: <ul style="list-style-type: none"> (a) What is the average number of sheets collated per hour by one clerk? (b) On the average, how many sheets to the set? 	Sheets Sheets	3,000 3

* May use manual or manually operated aids; but no mechanical-driven or motor-driven equipment.
 ** Attached sheets are to be considered as one piece.

PRODUCTION STATISTICS (MERCHANDISING CONCERN) *Continued*

Operation	Unit of Measure	No. of Units
6. FOLDING: In the manual folding of mail, statements, etc., what is the average rate of production per hour per clerk: (a) When 2 folds are made?..... (b) When 3 folds are made?.....	Sheets Sheets	723 —mostly 2 fold with some 1 and 3 fold
7. INSERTING: What is the average rate of production per hour per clerk for manually inserting folded mail or invoices into: (a) A blank-faced envelope?..... (b) A window envelope?.....	Pieces* Inserted	395
8. SEALING: In manually sealing envelopes, what is the average number of envelopes sealed per clerk per hour?.....	Env.	1,170
9. PREPARING ADDRESSING MACHINE STENCILS: In preparing fibre addressing stencils: (a) What is the average number typed per hour by one typist?..... (b) What is the average number of lines per stencil?...	Stencils Lines	93 2-3
10. PREPARING ADDRESSING MACHINE PLATES: In preparing metal addressing machine plates: (a) What is the average number of metal address plates prepared per hour per operator on mechanical equipment (graphotype)?..... (b) What is the average number of lines per plate?.... (c) What model graphotype is used? _____	Plates Lines	
11. ADDRESSING: What is the average number of envelopes addressed per hour by one clerk: (a) Manually (handwritten)?..... (b) Typewritten?.....	Env. Env.	155 170
12. STAMPING: What is the average number of stamps of <i>one</i> denomination affixed on envelopes per hour by one clerk: (a) Affixing manually?..... (b) Using a hand-operated stamp affixing machine?....	Stamps Stamps	1,116
13. CHECK WRITING: In preparing typewritten payroll checks (Not including the signing or authentication of the check), what is the average rate of production per hour per clerk: (a) For checks with an attached voucher?..... (b) For checks without an attached voucher?.....	Checks Checks	Refund checks with carbon copies 100
14. INVOICING: In preparing invoices on the typewriter (including customer's name and address: (a) What is the average number of invoices prepared per hour per clerk?..... (b) What is the average number of lines typewritten per invoice?.....	Invoices Lines	

* Two or more sheets folded together are to be regarded as one sheet.

PRODUCTION STATISTICS (MERCHANDISING CONCERN) *Continued*

Operation	Unit of Measure	No. of Units
15. POSTINGS: In manually posting credit sales to individual customer's accounts, what is the average number of postings per hour per clerk?	Postings	71
16. NUMERICAL KEY PUNCHING: What is the average number of digits punched per hour by one operator from: (a) Coded material (does not require any computation by the operator)?	Digits	9,150
(b) Uncoded material (requires interpretation by operator)?	Digits	
17. TYPING: What is the average number of lines of ordinary copywork (i.e., letters or straight typing of ordinary difficulty with few or no figures) typed per hour by a typist on a manually operated, standard-keyboard typewriter: (a) From longhand copy?	Lines*	
(b) From typed or printed copy?	Lines*	
18. TRANSCRIBING: In transcribing ordinary typing of little difficulty with a minimum of figures, what is the average number of lines typed per hour by a typist: (a) From shorthand notes?	Lines*	160
(b) From dictating machine?	Lines*	

* An average of 60 strokes is considered a line.

(2,050 office employees)

METHODS DEPARTMENT WORK STANDARDS RECORD

1. Typing Plant and Equipment cards from handwritten originals
No copies
Royal Standard, Model KMM—Touch Control—12" carriage—pica
Production per hour—25 cards
2. Posting branch office copy of invoice to Kardex Visible Records
Kardex Visible Cabinets—12 section—5" x 8" card size pockets—using 5" x 8" master and instruction cards—1 15/16" x 5" commodity cards
Production per hour—40 invoice copies
3. Checking customer's original order to Kardex Visible Records for sales credit, trading area, customer credit rating, etc.
Kardex Visible Cabinets—12 section—5" x 8" card size pockets—using 5" x 8" master and instruction cards—1 15/16" x 5" commodity cards
Production per hour—120 orders
4. Shaving Dictaphone Cylinders
Dictaphone Shaver—Standard Floor
Production per hour—50 cylinders

BILLING DEPARTMENT STANDARDS

Operation	Standard in Minutes	Production per 480 Minutes Day
1. Price and Discount Order.....	1.50	310 orders
2. Comptometer Extension of price X discount on order:		
A. Local Order.....	.75	640 orders
B. Store Order.....	.95	505 orders
C. Foreign Order.....	2.00	240 orders
3. Typewrite invoice from order:		
A. Local Invoice.....	4.00	120 invoices
B. Store Invoice.....	3.90	123 invoices
C. Foreign Invoice.....	9.00	53 invoices
4. Check of price and discount on invoice.....	1.20	400 invoices
5. Comptometer check of price X discount on invoice:		
A. Local Invoice.....	.30	1,600 invoices
B. Store Invoice.....	.40	1,200 invoices
C. Foreign Invoice.....	1.50	320 invoices

THE CARBORUNDUM CO. MAIN OFFICE FORM NO. 450		METHODS DEPARTMENT WORK STANDARDS RECORD		STUDY NO. <u>DB-1</u> SHEET <u>1</u> OF <u>1</u>	
OPERATION <u>Checking customer's original order</u>			DEPARTMENT <u>Buffalo District Branch</u>		
to Kardex Visible Records for sales			SECTION _____		
credit, trading area, customer credit			STANDARD <u>0.50 minutes</u>		
rating, etc.			OBSERVER <u>E. J. Tasdler</u>		
			DATE <u>3-14-46</u>		
OPERATOR'S NAME <u>Mary Rudson</u>			CLOCK NO. _____		
NAME <u>Kardex Visible Cabinets</u>		MACHINE INFORMATION		NO. _____	
		MODEL <u>12 section</u>			
SPEED _____		SIZE <u>5" x 8" card size pockets - using</u>			
		<u>5" x 8" master and instruction cards - 1 15/16" x 5" commodity cards</u>			
TOOL NOS. _____		REFERENCE DATA _____			
CONTRIBUTORY STANDARDS _____					
SUPERSEDES STANDARD OF _____ ON OPERATION _____					
REASON FOR CHANGE _____					
STUDY BY		STANDARD DATA <input type="checkbox"/>		REFER TO _____	
		OBSERVATION <input type="checkbox"/>			
		COMPARISON <input type="checkbox"/>			
NOTES TO BE TYPED ON STANDARD CARD			SUMMARY OF STANDARD		
<u>Production per hour - 120 orders</u> <u>Time per 100 orders - 50 minutes</u>			SET-UP		
			TOTAL HANDLING TIME	<u>0.54</u>	
			TOTAL MACHINE TIME		
			ALLOWANCE <u>50/60</u> =	<u>0.92%</u>	= <u>0.04</u>
			TOTAL TIME	<u>0.50</u>	
REMARKS			STANDARD	= minutes = <u>0.50</u>	
			APPROVAL SIGNATURES		
			METHODS		
			DEPARTMENT		

Figure 159a. Work Standards Record

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Figure 159b. Work Standards Record (*continued*)

PHOTOGRAPHIC ROOM TIME STUDY SURVEY

TIME STUDY #1												
Operation:	Exposure of 8½" × 11"								Standard Time: 0.20			
Machine:	Recommendation Sheet Tracings								Observed by: J. W. W.			
Operator:	Paragon Blueprint Machine								Department: Photographic			
	D. Graham and W. Evans								Date: 8/22			
Explanation:	Exposure of 259 tracings (individual sheets) which are run through the machine on strips of paper. Each strip holds 4 tracings.											
Element		Elemental Time								Selected Time		
1. PU Tracing and Pos. on Strip (1st Tracing)		.07	.07	.06	.07	(.07)	.08	.07	.09			0.07
2. PU Tracing and Pos. on Strip (2nd, 3rd, 4th)		.06	.06	.06	.06	.05	.06	.07	(.06)	× 3		0.18
3. Tear Strip		.07	.06	.07	.07	.07	(.07)	.09	.08			0.07
												0.32
Note: Two operators are required to keep sheets in order so that a complicated sorting operation may be avoided.										× 2 Men	× 2	
												0.64
										÷ 4 Pcs.		0.16
										Time per Pc.		0.16
										Relaxation Factor 25%		0.04
										Total Time		0.20
										Standard Time		0.20
TIME STUDY #2												
Operation:	Development of 8½" × 11"								Standard Time: 0.11			
Machine:	Recommendation Sheet								Observed by: J. W. W.			
Operator:	Black and White Developer								Department: Photographic			
	D. Graham								Date: 8/22			
Explanation:	The exposed strips of paper are picked up from box in rear of Blueprint Machine and carried to the Black and White Machine. Here each strip is run through individually and rolled in hand collectively.											
Element		Elemental Time								Selected Time		
1. PU Strips and to B. and W. Machine and Pos. on Table										÷ 65 Strips		0.006
		(.42)										
2. PU Strip and Pos. in Machine	.08	.07	.11	.07	.07	.07	.11	.08	(.07)			0.07
3. Machine Develop	.25	.22	.23	.23	.23	.24	.24	(.23)	.23			0.23
4. Hand Roll Strip	.11	.19	.10	(.09)	.08	.05	.07			÷ 3 Strips		0.03
5. Roll Aside	.02	.03	(.02)							÷ 16 Strips		0.001
												0.337
										÷ 4 Pcs.		0.084
										Time per Pc.		0.084
										Relaxation Factor 25%		0.021
										Total Time		0.105
										Standard Time		0.11

PRODUCTION STATISTICS

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PHOTOGRAPHIC ROOM TIME STUDY SURVEY (Continued)

TIME STUDY #3

Operation: Drying of $8\frac{1}{2}" \times 11"$
Recommendation Sheet
Machine: Roller Drier
Operator: W. Evans and D. Hidy

Standard Time: 0.37
Observed by: J. W. W.
Department: Photographic
Date: 8/22

Explanation: The developed strips are dried by running through Roller Drier.

Element	Elemental Time								Selected Time
1. PU Strip and Pos. in Drier	.20	.21	.15	.18	(.20)	.16	.23		
	.20	.30	.17	.20	.17	.20	.18		0.20
2. Machine Dry	1.33	1.34	(1.34)	1.36	1.35			÷ 4	0.335
3. Remove and Stack in Order	.65	.05	.06	.09	.06	(.06)	.07		0.06
									0.595
Note: Two operators are required to keep strips in order								× 2	1.190
								÷ 4 Pcs.	.297

Time per Pc. 0.297
Relaxation Factor 25% 0.74
Total Time 0.371
Standard Time 0.37

TIME STUDY #4

Operation: Cutting $8\frac{1}{2}" \times 11"$
Recommendation Sheets to size
Machine: Paper Cutter
Operator: F. Walezak

Standard Time: 0.25
Observed by: J. W. W.
Department: Photographic
Date: 8/22

Explanation: The dried strips of Black and White copies are cut to exact $8\frac{1}{2}" \times 11"$ size.

Element	Elemental Time								Selected Time
1. PU Strip and Pos. on Cutter	.10	.08	.10	.06	.07	.08	(.08)		
								÷ 4	0.02
2. Pos. Strip and Cut	.03	.04	.04	.04	.03	.04	.04	(.04)	.03
								× 3	0.12
3. PU Pc. and Pos. and Cut	.06	.04	.04	.04	.06	.05	.05	.05	(.05)
									0.05
4. Pc. Aside	.01	.01	.02	.01	.03	(.01)	.02		0.01
									0.20
								Time per Pc.	0.20
								Relaxation Factor 25%	0.05
								Total Time	0.25
								Standard Time	0.25

PHOTOGRAPHIC ROOM TIME STUDY SURVEY (Continued)

TIME STUDY #5											
Operation:	Punching (2) holes in 8½" × 11" Recommendation Sheets for Binding Purposes						Standard Time:		0.02		
Machine:	Two-Hole Puncher						Observed by:		J. W. W.		
Operator:							D. Hidy		Department:		Photographic
							Date:		8/22		
Explanation:	The finished Black and White Prints are punched with a two-hole puncher to facilitate binding.										
Element		Elemental Time								Selected Time	
1. PU Sheets of Pos. in Punch	.17	.23	.16	.16	.15	(.16)	.15	.17	.13	0.16	
2. Punch (2) Holes	.04	.04	.04	.03	.04	.04	(.04)	.03	.04	0.04	
3. Re Sheets and Aside to Bench	.05	.04	.04	.04	.05	.05	.04	(.04)	.04	0.04	
										0.24	
										÷ 15 Pcs. 0.016	
Note: An average of (15) sheets were punched at one time											
							Time Per Pc.	0.016			
							Relaxation Factor 15%	0.002			
							Total Time	0.018			
							Standard Time	0.02			
TIME STUDY #6											
Operation:	Exposure of 8½" × 11" sheets in Automatic Black and White Machine						Standard Time:		0.20		
Machine:	Automatic Black And White						Observed by:		J. W. W.		
Operator:							W. Evans		Department:		Photographic
							Date:		8/28		
Explanation:	The 8½" × 11" tracing is placed on sheet of 8½" × 11" sensitized paper and both are started through the machine.										
Element		Elemental Time								Selected Time	
1. PU Paper and Tracing and Pos. Together	.08	.08	.07	.09	.08	.08	.07	.07	.06	(.07)	0.07
2. Pos. in Machine	.03	.03	.02	.02	.02	.02	.02	.02	.02	(.02)	0.02
										0.09	
Note: Sheets and tracings were stacked on machine table ready to start										× 2 Men	
										0.18	
							Time per Pc.	0.18			
							Relaxation Factor 15%	0.027			
							Total Time	0.207			
							Standard Time	0.20			

CENTRALIZED TRANSCRIBING

Here is a staff of ten girls who transcribe letters all day using I.B.M. Electro-matic typewriters, continuous stationery, and dictaphone equipment. Each typewriter is equipped with a Veeder Root Counter which registers one digit for every ten keystrokes made on the machine. Each girl has a dittoed count sheet upon which she records her daily activity according to the proper classification of activity. Each week every girl turns in her count sheet and the activity postings are figured into summaries. 10 Keystrokes to make counter register 1. Attached are:

1. Method of figuration (Figure 160a)
2. Sample count sheet (Figure 160b)
3. Production standards (Figure 160c)

-
1. Start for each day } difference is total and counter for day.
Stop for each day }
 2. Total daily counter strokes to get weekly counter strokes.
 3. Refer to table:

(1) Find 7,000 = 8.659 hrs.
(2) Find 900 = 1.113 hrs.
(3) Find 0 = .011 hrs.
9.783 hrs.
 4. This is hours credit for typing (counter strokes).
 5. Total number of cylinders transcribed for week (13):

(a) 10 = .414
(b) 3 = .124
.538
 6. This is hours credit for cylinders transcribed.
 7. Total number of letters transcribed (68).
 8. (a) 60 = 1.713
8 = .228
1.941
 9. This is hours credit for letters transcribed.
 10. Total hours credit:

CS — 9.783
C — .538
L — 1.941
12.262
 11. This is total productive hours for transcribing.
 12. Take out of counter strokes, cylinder and letters any work not pertaining to transcribing.
 13. Allowable delays:
 - (1) Covered in standards.
 - (2) Not covered—depend on honesty of girl to record in hours.
 14. Total all allowable delays to get week allowable delays.
 15. Add total of 14 to total of 10 = 38.76 or total productive time for week.
 16. Get actual hours girl worked (40).
 17. Divide actual hours worked into #15 = % of efficiency.
 18. Operators merely report but know how to figure % of efficiency . . . give them high and low and own for month.
-

Figure 160a. Method of Figuration—Centralized Transcribing

APPENDIX B

Name <u>Lillian Norkin</u>	Week Ending <u>December 6, 1946</u>					
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Wait for work....						
Machine Trouble: D.—Dictaphone T.—Typewriter						
Instructions or Information....						
Transcription Difficulty.....						
Supervisor.....	4½ hrs.	4 hrs.	5½ hrs.	5¾ hrs.	4¾ hrs.	
	Repairing T.W.'s ½ hr.			Using another T.W. 1¼ hrs.		
	Cleaning ¼ hr.					
Total Allowable Delay.....	5¼ hrs.	4 hrs.	5½ hrs.	7 hrs.	4¾ hrs.	
Counter Stop....	56,272	58,958	60,624	61,292	63,089	
Counter Start....	55,180	56,272	58,958	60,624	61,292	
Total.....	1,092	2,686	1,666	668	1,797	
Less Total on Copy Work....						
Total Trans.....						
Letters.....	2	24	13	13	16	
Cylinders.....	2	3	2	3	3	
Special Cylinders..						
Envelopes.....						
Department Memo.....						
Reverse Carbon...						
Actual Time Worked.....	8	8	8	8	8	
<u>Summary</u>		<u>Dec. Hours.</u>				
Total C. S. Trans.	7,709	9.783	Productive Hrs. Trans.	12.26		
Total Letters	68	1.941	Productive Hrs. Copy			
Total Cylinders	13	.538	Plus Allowable Delay	26.50		
Total Envelopes			Total Productive	38.76		
Total Dept. Memo			Actual Hrs. Worked	40.00		
Total Reverse Carbon						
Productive Hours Transcribing			Gain or Loss	- 1.24		
			97%			

Figure 160b. Weekly Count Sheet of Production—Centralized Transcribing

PRODUCTION STATISTICS

801

PRODUCTION STANDARDS

DESCRIPTION	NO.
	SHEET
	REPLACING
	MACH. NO.
	DEPT. TRANSCRIBING
DELAYS ALLOWANCES FOR TRANSCRIBING FROM CYLINDERS ON STRAIGHT COPY ONLY	EFF. DATE 6/12

Below are listed the delays for transcribing from cylinders on straight copy only, found in a standard (8) hour day on all Transcribing in the Transcribing Department.

The time allowed or manner in which each delay is to be taken care of by our Standards Department is also given.

A. 5% Personal Allowance is made to cover receiving pay, drinking water, lavatory, etc.

B. 11% Job Allowance is made to cover the following delays (time allowed on each delay is also given)

C. 3% Fatigue Allowance

	Min. Per Day
1. Morning start, dust, open desk, remove typewriter cover, etc....	5.00
2. Tear off partially typed letter, to start over.....	2.19
3. Tear off copy and carbon, original copy to type Post Script.....	1.35
4. Refer to Dictionary.....	2.50
5. Refer to S.P.I., or Card File for Information.....	7.50
6. Receive Assistance, or Instruction from Department Supervisor.	15.00
7. Re-insert copy in Typewriter, to add Name.....	.50
8. Get Forms or Supplies from cabinet.....	2.75
9. Deposit Copy Work on table.....	1.50
10. Stack used Carbon Sheets.....	.60
11. Adjust Typewriter.....	1.00
12. Operator's Personal Time.....	24.00
13. Post Production slip record.....	2.00
14. Wait for Instructor.....	1.50
15. Sharpen pencil, and point on erasers.....	.50
TOTAL.....	67.89

C. All necessary delays are included in the above list. No others will be allowed. *[This has been changed.]*

D. The above list of delays are taken from Time Studies and data on file in the Standards Department.

ALL STANDARDS ARE TEMPORARY AND SUBJECT TO CHANGE.

Figure 160c. Production Standards—Centralized Transcribing (continued)

PRODUCTION STANDARDS

DESCRIPTION	NO.	
	SHEET	
	REPLACING	
	MACH. NO.	
	DEPT.	TRANSCRIBING
STANDARDS ON TRANSCRIBING FROM CYLINDER ON STRAIGHT MATTER TYPING	EFF. DATE	6/13
<u>TYPING</u>	Decimal Min.	Dec. Hrs. Including Allowances
Elements Included in Standard		
1. Typing per Key Stroke (55) Words per Min.....	0.00364	0.0000721
2. Listening Time Based on No. of Key Strokes.....	0.00140	0.0000277
3. Correction Time, includes Erasing, Correcting.....	0.00120	0.0000237
Total Standard.....	0.00624	0.0001237
Pay Point is based on (1) Key Strokes to (1) one Counter Stroke, therefore the Std.....		0.001237
<u>CYLINDER</u>		
Elements Included in Standard		
1. Assemble Corr. in Folder and Remove Cylinder.....	0.48	0.0095
2. Return Cylinder, Correspondence to Bin and Stamp Cylin- der Slip.....	0.43	0.0085
3. Get Cylinder and Corr. Folder, Time Stamp Cylinder Slip.....	0.61	0.0120
4. Return to Desk and Mount Cylinder in Machine.....	0.57	0.0113
Total Standard.....	2.09	0.0414
<u>LETTER</u>		
Element Included in Standard		
1. Prepare or Get Ready to Type, Align, Study Copy.....	0.50	0.00992
2. Tear off Letter, Remove Carbon, Lay Aside.....	0.75	0.01487
3. Inspect Typed Copy.....	0.05	0.00099
4. Refer to Copy or File for Verification.....	0.14	0.00277
	1.44	0.02855
THESE STANDARDS ARE TEMPORARY AND SUBJECT TO CHANGE.		

Figure 160d. Production Standards—Centralized Transcribing (continued)

803

DESCRIPTION	NO.
STANDARDS ON TRANSCRIBING FROM CYLINDER ON STRAIGHT MATTER TYPING	SHEET
	REPLACING
	MACH. NO.
	DEPT. TRANSCRIBING
	EFF. DATE 6/13

<u>MEMORANDUM</u>	Decimal Min.	Dec. Hrs. Including Allowances
Element Included in Standard		
1. Write out Instruction Note or Memo.....	0.60	0.01189
<u>REVERSE CARBON</u>		
Element Included in Standard		
1. Turn or Reverse Copy and Carbon to Type on Back of Letter	0.75	0.01487

Job Allowance....11%	Personal Allowance....5%	Fatigue All....3%
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THESE STANDARDS ARE TEMPORARY AND SUBJECT TO CHANGE.

Figure 160e. Production Standards—Centralized Transcribing (continued)

APPENDIX B

PRODUCTION STANDARDS

DESCRIPTION					NO.
STANDARDS IN TRANSCRIBING					SHEET 4
					REPLACING
					MACH. NO.
					DEPT. TRANSCRIBING
					EFF. DATE 6/29
Quantity	Typing	Cyl.	Letters	Instruction Note	Turn Copy and Carbon
1	0.001237	0.0414	0.02855	0.01189	0.01487
2	0.002474	0.0828	0.57100	0.02378	0.02974
3	0.003711	0.1242	0.08565	0.03567	0.04461
4	0.004948	0.1656	0.11420	0.04756	0.05948
5	0.006185	0.2070	0.14275	0.05945	0.07435
6	0.007422	0.2484	0.17130	0.07130	0.08922
7	0.008659	0.2898	0.19985	0.08323	0.10409
8	0.009896	0.3312	0.22840	0.09512	0.11896
9	0.011133	0.3726	0.25695	0.10701	0.13383
10	0.01237	0.4140	0.2855	0.11890	0.14870
20	0.02474	0.8280	0.5710	0.23780	0.2974
30	0.03711	1.242	0.8565	0.35670	0.4461
40	0.04948	1.656	1.1420	0.47560	0.5948
50	0.06185	2.070	1.4275	0.59450	0.7435
60	0.07422	2.484	1.7130	0.71340	0.8922
70	0.08659	2.898	1.9985	0.83230	1.0409
80	0.09896	3.312	2.2840	0.95120	1.1896
90	0.11133	3.726	2.5695	1.0701	1.1338
100	0.1237	4.14	2.855	1.189	1.4870
200	0.2474	8.28	5.710	2.378	
300	0.3711	12.42	8.565	3.567	
400	0.4948		11.420		
500	0.6185		14.275		
600	0.7422		17.130		
700	0.8659		19.985		
800	0.9896		22.840		
900	1.1133		25.695		
1,000	1.237		28.55		
2,000	2.474		57.10		
3,000	3.711				
4,000	4.948				
5,000	6.185				
6,000	7.422				
7,000	8.659				
8,000	9.896				
9,000	11.133				
10,000	12.37				
15,000	18.55				
20,000	24.74				
30,000	37.11				
40,000	49.48				
50,000	61.85				
100,000	123.70				
200,000	247.40				
300,000	371.10				
400,000	494.80				
500,000	618.50				
ALL STANDARDS ARE TEMPORARY AND SUBJECT TO CHANGE. ALL STANDARDS ARE IN DECIMAL HOURS.					

Figure 160f. Production Standards—Centralized Transcribing (continued)

ORDER HANDLING

To establish average performance we made a study by operations of the handling of an order.

1. A list was made of every basic operation in the production line.
2. A report log form was designed which showed:
 - (a) Department name
 - (b) Employee name
 - (c) Week ending date
 - (d) Name of operation done
 - (e) Kind of order worked upon
 - (f) Quantity of units handled
 - (g) Elapsed time to handle
 - (h) Remarks
3. Every employee charted his work for specified study periods on the report log form.
4. Tabulating cards were punched for each report.
5. Listing was made by Kind of Order and totaling Quantity and Elapsed Time.
6. Figurations were projected showing:
 - (a) Average quantity per employee per minute
 - (b) Average time per employee per unit handled
 - (c) Average dollar per unit handled

These results in point 6 are standards *only* in respect to work done by a given staff of employees at a specific time under specific procedures and as reported by the employees themselves.

However, among these apparent variables a spot check against actual timed performance showed little difference. For example . . . on operation of "Typing Shipping Notices":

<i>Report Log</i>	<i>Stop Watch</i>	<i>Micromotion</i>
2.48 min.	2 min.	1.5 min.

or about a minute difference over all.

Below are:

1. Sample count sheet (Figure 161a)
2. Published instruction sheet (Figure 161b)
3. Sample tab listing (Figure 161c)

The scheduled operations are:

MAILING

1. Opening and alphabetizing orders.

SALES STATISTICAL

- | | |
|-----------------|-------------------|
| 1. Coding | 3. Acknowledgment |
| 2. Sales credit | 4. Posting |

FILING

- | | |
|------------------------|-----------------------|
| 1. Pulling new orders | 5. Filing |
| 2. Checking new orders | 6. Pulling transfers |
| 3. Transferring | 7. Checking shipments |
| 4. Typing | |

MARKETING

- | | |
|-------------------------|-------------------|
| 1. Quotation file check | 2. Correspondence |
|-------------------------|-------------------|

FORMS LIBRARY

1. Overruns

ORDER

- | | |
|-------------------|------------------------|
| 1. Acceptance | 6. N.C.C.P. |
| 2. Analysis | 7. Change clerk |
| 3. Typing | 8. Ditto operator |
| 4. Inspecting | 9. Pull shipped orders |
| 5. Correspondence | 10. Copy ink in |

OFFICE SERVICE

1. Typing shipping notices

ORDER SCHEDULING

1. Scheduling

ACCOUNTS RECEIVABLE

- | | |
|------------|------------------------------|
| 1. Taxing | 4. Invoice |
| 2. Audit | 5. Post-shipped orders |
| 3. Balance | 6. Checking incoming freight |

CREDIT

- | | |
|---------------------|----------------|
| 1. Accepting credit | 3. Collections |
| 2. Correspondence | |

Office Manager

Dept.	Job Operation	Order	Units Handled	Min. Elapsed			
0	01	1	3735	4762	<i>1.27</i>		
0	01	2	22	250	<i>11.36</i>		
0	01	3	4945	7679	<i>1.55</i>		
0	01	4	7083	10876	<i>1.54</i>		
0	01	5	91	426	<i>4.68</i>		
0	01	7	4	70	<i>17.50</i>		
				15880		24063	<i>1.52</i>
0	02	1	70	174	<i>2.49</i>		
0	02	2	23	28	<i>1.22</i>		
0	02	3	586	1072	<i>1.83</i>		
0	02	4	1221	2552	<i>2.09</i>		
0	02	5	43	74	<i>1.72</i>		
0	02	7	3	3	<i>1.00</i>		
				1946		3903	<i>2.01</i>
0	03	1	4076	9630	<i>2.36</i>		
0	03	2	3563	9106	<i>2.56</i>		
0	03	3	2945	5382	<i>1.83</i>		
0	03	4	4117	7795	<i>1.89</i>		
0	03	5	2590	4886	<i>1.89</i>		
0	03	6	88	142	<i>1.61</i>		
0	03	7	352	631	<i>1.79</i>		
				17731		37572	<i>2.12</i>
1	01		13526	1950	<i>.144</i>		
				13526		1950	<i>.144</i>

0—Dept. = Credit Dept.	3735—Units = # Orders Handled
01—Operation = Accepting Credit	4762—Minutes = # Minutes Elapsed
1—Order = J	Italic figures = Percentages

Figure 161c. Tab Listing—Order Handling

OFFICE PRODUCTION STATISTICS
COMPANY NUMBERS

Question No.	1	2	3	4	5	6	7	8	9	10	11	12
1	300	415	508	(Mach.) 6,000	400			Mach. 884	250	Mach. 450		Mach. 250
2	1,000	710	200		500-550			900	200	400	572	250
3	—	370	122	60				60	—	100	118	250
4	200	64	—	40				45	—	50		150
	—	168	—	—	3			120	—	250		150
					420			7	4	5	162	13
					Motor			1,000	200	4,500	5,600	1,500
								Motor	Motor	Motor	Motor	Motor
										10	20	5
										300	187	200
5	50-60 1,000 Motor	750	600		3,000 (chain gang style)			20 1,500 Motor	1,000	800	2,000	
6	500	603	3	300	3	2,000		1,000	3	6	3	
7	500	618	150			1,000		4,000-5,000	700	520		
8	4,000	1,059				3,600		2,500		500		
9	70					2,500		180		686		
10	3	40		27½ 3+ #28		45		28.27 2.8	35	12		63
		#6341				43		Keyboard and wheel	4	12		4
						#6343		75	Keyboard	#6340		Keyboard
11		95									108	70
12												
13		90				1,500					173	
14		150	28		500			100			33	
		2½	3					4			7	
15	8,570	7,000	120	5,000	1,375			5,000	7,500			9,000
16		4,000										7,000
17		180		300	120			75		185	124	200
		135		100	120			100		163	163	200
		160		150	120			50		176	124	150
18								92		128		150

APPENDIX C

OFFICE CUSTOMS

A total of 836 companies employing 260,062 office workers took part in the NOMA Office Customs Survey. Sixty-nine principal cities in the United States and six in Canada were represented. The answers pertain to Smoking Privileges, Rest Facilities, Between Meal Feeding and Normal Office Hours.*

Smoking

Smoking privileges, like other office customs, do follow an increasingly common pattern. This pattern is conditioned by factors such as sex and size, whereabouts and work being done. Yet for the majority of employees in most companies there is a reasonable expectancy of being governed by closely conforming customs. These conclusions are based on some of the more general findings in this survey.

Certain clear lines of privilege and prohibition are apparent in smoking practices based on the sex of the office workers. An all-out no-smoking rule is applied to the female workers, for example, almost four times as frequently as for men. Women have some form of restriction on their smoking in five out of six companies. One out of two companies is inclined to banish all smoking restrictions as far as men are concerned: three times as frequently as for women. The larger the number of office workers employed, the more equal the application of restrictions to both men and women.

Why permit the office worker to smoke? Two companies out of five felt it improved morale and decreased time lost by loitering in lavatories. Most companies did not believe smoking dangerously increased the fire hazard. The majority agreed that granting of the privilege had little effect on reducing absenteeism and turnover. Most popular reasons for restricting or prohibiting smoking were ascribed to the poor impression it made on the public, that it looked unbusinesslike, and was not in accord with other office conventions.

Where is smoking permitted? The most favored places were lavatories, rest areas and enclosed offices. Men were most likely to do their smoking in enclosed offices, while women took their cigarettes to the rest area or the lavatory. Smoking at desks or where there is contact with the general public for either sex, was most generally frowned upon.

Smoking privileges do not seem to be too greatly affected by the Canada-United States boundary line, nor by United States geography. Comparable cus-

* This Information is extracted from the NOMA Office Customs Survey, published in 1947 by the National Office Management Association, Philadelphia.

toms are reflected from ocean to ocean. Canadian companies are more inclined to place restrictions on both sexes than companies below the border. Then, too, the farther west or south the company is located from the northeastern seaboard, the less apparent the tendency to discriminate between men and women.

The smaller offices are more inclined to be lenient in their smoking rules and allow greater freedom to both sexes. Almost half of the companies with 100 or fewer office employees did not trouble to restrict male smoking in any way. Over one-sixth gave women the same privilege.

Six out of ten companies reporting said the current practice had been in effect for 10 years or more.

OFFICE SMOKING PRIVILEGES, BY SEX OF EMPLOYEE AND TYPE OF BUSINESS

TYPE OF BUSINESS	NO SMOKING PERMITTED			RESTRICTED SMOKING PERMITTED			UNRESTRICTED SMOKING PERMITTED		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
Total - All Companies	-	51	18	15	346	287	382	-	134
ADVERTISING & PUBLISHING	-	3	-	-	13	7	15	-	1
BANKING & FINANCIAL	-	3	-	3	8	21	8	-	-
COMMUNICATIONS	-	-	-	-	3	7	3	-	1
FOOD MFG., SALES & DIST.	-	2	1	-	26	28	28	-	7
GOVT'L., EDUC. & SERVICE	-	3	6	2	17	11	17	-	8
INSURANCE	-	5	5	2	26	37	29	-	4
MANUFACTURING	-	19	2	4	180	107	196	-	76
PUBLIC UTILITIES	-	2	-	1	10	14	11	-	1
TRANSPORTATION	-	3	-	-	5	2	8	-	5
WHOL. & RET. SALES & DIST.	-	3	1	2	26	32	27	-	8
MISCELLANEOUS	-	8	3	1	32	21	40	-	23

OFFICE SMOKING PRIVILEGES, BY SEX OF EMPLOYEE AND SIZE OF COMPANY

SIZE OF COMPANY BY NUMBER OF OFFICE EMPLOYEES	NO SMOKING PERMITTED			RESTRICTED SMOKING PERMITTED			UNRESTRICTED SMOKING PERMITTED		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
Total - All Companies	-	51	18	15	346	287	382	-	134
1 - 25.	-	12	6	2	70	40	79	-	36
26 - 100	-	18	7	5	125	86	139	-	40
101 - 500	-	13	1	2	110	90	121	-	41
501 - 1000	-	2	1	2	21	29	21	-	5
1001 - 5000	-	2	1	2	7	18	7	-	5
OVER 5000	-	2	-	1	-	8	1	-	1
SIZE NOT REPORTED	-	2	2	1	13	16	14	-	6

OFFICE SMOKING PRIVILEGES, BY SEX OF EMPLOYEE AND GEOGRAPHIC AREA

GEOGRAPHIC AREA	NO SMOKING PERMITTED			RESTRICTED SMOKING PERMITTED			UNRESTRICTED SMOKING PERMITTED		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
CANADA	-	4	-	1	16	34	19	-	3
NORTHEAST U. S.	-	11	4	1	98	56	107	-	30
NORTH CENTRAL U. S.	-	9	3	2	99	67	107	-	24
SOUTHEAST U. S.	-	5	2	5	16	19	16	-	17
CENTRAL PLAINS U. S.	-	6	2	1	29	28	34	-	15
FAR WEST U. S.	-	3	1	2	25	20	26	-	6
UNASSIGNED OR NO ADDRESS REPORTED	-	13	6	3	63	63	73	-	39

OFFICE SMOKING PRIVILEGES, BY SIZE OF COMPANY AND TYPE OF RESTRICTION

TYPE OF RESTRICTION	SIZE OF COMPANY BY NUMBER OF OFFICE EMPLOYEES						
	1-25	26-100	101-500	501-1000	1001-5000	OVER 5000	SIZE NOT REPORTED
EMPLOYEES MAY SMOKE:							
DURING LUNCH PERIODS	52	112	107	32	14	3	17
DURING REST PERIODS	46	117	96	19	13	4	16
ONLY IN SPECIFIED PLACES:							
*REST AREAS	72	137	148	33	17	6	22
ENCLOSED OFFICE	25	63	87	24	13	8	14
LAVATORIES	78	170	155	37	17	9	18
AT DESKS (REST PERIODS)	10	34	47	7	7	6	2
CAFETERIAS	17	66	87	25	17	7	13
CORRIDORS	9	36	42	9	9	4	5
IN DEPARTMENTS: BEFORE AND AFTER REGULAR OF- FICE HOURS AND DURING LUNCH PERIODS	41	106	117	30	19	7	16
WHERE THERE IS CONTACT WITH THE GENERAL PUBLIC	9	23	47	14	9	3	4
RECREATION, GYM AND ASSEMBLY ROOMS	9	32	55	21	10	6	5
ONLY WHILE SEATED AT DESK	4	13	17	2	1		2

*REST AREA - A SEPARATE ROOM OR AREA NEAR THE WORK PLACE, EQUIPPED WITH FURNITURE AND SET ASIDE SOLELY AS A PLACE OF REST.

OFFICE SMOKING PRIVILEGES, BY EXPERIENCE OF
COMPANY REPORTING AND TYPE OF RESTRICTION

EXPERIENCE OF COMPANY	YES	NO
CONDUCTED ACTUAL SURVEYS TO EVALUATE EFFECT OF PRIVILEGE	39	768
PERMIT SMOKING, EITHER RESTRICTED OR UNRESTRICTED	818	18
BASED ON ACTUAL SURVEY OR OPINION THE FOLLOWING RESULTS ARE REPORTED BY COMPANIES PERMITTING SMOK- ING IN SOME FORM.		
IMPROVED MORALE	356	136
DECREASED TIME PREVIOUSLY LOST THROUGH SMOKING IN LAVATORY	370	121
REDUCED ABSENTEEISM	20	366
REDUCED TURNOVER	31	355
DANGEROUSLY INCREASED FIRE HAZARD	71	359
SMOKING AT WORK NOT PERMITTED BECAUSE.		
FIRE HAZARD	112	113
MAKES POOR IMPRESSION ON PUBLIC	273	42
UNHEALTHY	37	113
VENTILATING CONDITIONS DO NOT PERMIT	98	97
BELIEVE IT IMPAIRS EFFICIENCY	154	82
LOOKS UNBUSINESSLIKE	271	32
NOT IN ACCORD WITH OTHER OFFICE CONVENTIONS	259	35

OFFICE SMOKING PRIVILEGES, BY SEX OF EMPLOYEE AND TYPE
OF RESTRICTION

TYPE OF RESTRICTION	TOTAL COMPANIES REPORTING RESTRICTIONS	RESTRICTIONS APPLY TO	
		MALE	FEMALE BOTH
EMPLOYEES MAY SMOKE:			
DURING LUNCH PERIODS	337	12	171 154
DURING REST PERIODS	311	4	187 120
ONLY IN SPECIFIED PLACES:			
*REST AREAS	435	2	291 142
ENCLOSED OFFICE	234	115	39 80
LAVATORIES	484	6	243 235
AT DESKS (REST PERIODS)	113	29	30 54
CAFETERIAS	232	1	92 139
CORRIDORS	114	52	15 47
IN DEPARTMENTS: BEFORE AND AFTER REGULAR OFFICE HOURS AND DURING LUNCH PERIODS	336	51	120 165
WHERE THERE IS CONTACT WITH THE GENERAL PUBLIC	109	73	5 31
RECREATION, GYM AND ASSEMBLY ROOMS	138	9	34 95
ONLY WHILE SEATED AT DESK	39	18	13 8

*REST AREA - A SEPARATE ROOM OR AREA NEAR THE WORK PLACE, EQUIPPED
WITH COMFORTABLE FURNITURE AND SET ASIDE SOLELY AS A PLACE OF REST.

Rest Facilities

The larger the office, up to those with more than 1000 employees, the more prevalent the practice of providing rest areas and recreation rooms. Offices with over 1000 employees, however, tended to reverse this trend. Recreation rooms were much less frequently provided than rest areas; actually, by only 15 per cent of all business. Banking, Financial and Insurance firms led the list in providing these facilities, while Advertising, Publishing, Transportation and Public Utilities concerns were least partial to the practice.

On the rest period front, by a ratio of 11 to nine, the companies went on record for provision. The question, however, was phrased "Do you grant official rest periods?" A check of the answers reveals that in addition to a definite strata opposed to rest periods in any form, a large segment of the reporters favored "unofficial" or irregular periods, usually at the employees' discretion. Checks and balances were the threat of cancellation of the privilege in the event of abuses.

On the entirely negative side, some companies tacked a few minutes on to the lunch hour and moved up the work stopping time to make up for the no rest period rule. The comments written in on the subject indicate some strong opinions, pro and con. Rest periods are probably one of the more controversial issues in today's office world.

Where granted, women could expect to be favored for rest periods by a ratio of three to two over men. Job-wise, women engaged in "monotonous" or repetitive types of work had an even greater expectancy of this type of periodic relief.

The practice was most common with Canadian companies; least common with firms in Northeast United States.

Where male employees were given rest periods, four out of five companies permitted two periods daily with almost half of them favoring over 15 minutes per period. An 11 to 15 minute period was most prevalent for those granting single daily periods.

Nine out of 10 companies having rest periods in effect for women standardized on two daily periods from 11 to 15 minutes duration. This time span was also approved by single period companies.

Almost without exception, where rest periods were in effect, companies declared the practice improved morale; with relatively more exceptions, believed efficiency was increased. The viewpoints of the majority resulted from at least 10 years of experience with the practice.

REST AREAS

Rest areas are defined as special areas or separate rooms near the work place, equipped with comfortable furniture and set aside solely as a place of rest. This definition is admittedly broad. But the findings reflect at least a consciousness and an approach to meeting the need, if there is agreement that it exists.

Within the broad limits of the above definition, rest areas were provided by 60 per cent of the companies reporting for females only or for both males and females. There was no instance of the provision being made for males only. While approximately as many companies provided rest areas for women as they

did for both sexes, there was no clear cut indication that type of business was a factor in favoring women nor in influencing to any pronounced degree the actual provision of rest areas.

Offices of from 501 to 1000 employees provided rest areas most frequently of all the size groups reporting, about one-third more frequently than offices of under 26 employees. Offices of over 1000 employees had rest areas at almost the same frequency as offices under 26 employees.

The element of favoritism toward women in providing rest areas as compared to provision for both sexes, was most pronounced in offices of from 26 to 100 employees; was least pronounced in offices under 26 workers and offices of over 5000 workers.

RECREATION ROOMS

Recreation Rooms were defined as separate rooms or special areas set aside for playing indoor games, for dancing, dramatics and the like. Included would be such places as library or gymnasium.

The provision of Recreation Rooms increased generally in ratio to the size of the office. For example, offices of more than 1000 employees were about five times as likely to have Recreation Rooms as offices with under 26 employees; twice as likely as offices with 101 to 500 employees.

Recreation Rooms for Branch Offices were less to be expected than for Main Offices.

Recreation Rooms were comparatively most common in Insurance Companies, Communications, Banking and Financial firms; least to be expected in Transportation, Advertising, Publishing, Wholesale and Retail companies. Where existent, the practice was predominantly to make them available for both sexes.

Northeast and North Central U.S. companies reported almost the identical percentage (19) of instances where Recreation Rooms were provided.

REST PERIODS

Geographically the Canadian companies reporting in 14 out of 20 instances favored rest periods; Southeast and North Central U.S. reported 12 followed closely by Far West U.S. companies with 13 out of 20 instances. Northeast U.S. companies indicated just less than half in favor of the grant.

By type of business, rest periods were most frequent in Governmental, Educational and Service organizations. With the exception of Banking, Financial, Manufacturing and Public Utilities firms (which were least committed to rest periods), more than half of all other companies approved the practice. Banking and Financial companies disapproved by the greatest margin, 3 to 2.

OFFICE REST FACILITIES: REST AREAS,* BY SEX OF EMPLOYEE
AND TYPE OF BUSINESS

TYPE OF BUSINESS	PROVIDED			NOT PROVIDED		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
Total - All Companies	-	273	269	106	1	262
ADVERTISING & PUBLISHING	-	7	6	3	-	10
BANKING & FINANCIAL	-	10	14	5	-	7
COMMUNICATIONS	-	4	6	2	-	1
FOOD MFG., SALES & DIST.	-	19	23	8	-	19
GOVT'L., EDUC. & SERVICE	-	12	14	3	-	14
INSURANCE	-	24	22	5	-	29
MANUFACTURING	-	136	118	52	1	116
PUBLIC UTILITIES	-	10	11	6	-	6
TRANSPORTATION	-	3	8	2	-	4
WHOL. & RETL. SALES & DIST.	-	17	31	6	-	20
MISCELLANEOUS (ALL OTHER)	-	31	16	14	-	36

* BY REST AREA IS MEANT A SEPARATE ROOM OR AREA NEAR THE WORK PLACE, EQUIPPED WITH COMFORTABLE FURNITURE AND SET ASIDE SOLELY AS A PLACE OF REST.

OFFICE REST FACILITIES: REST AREAS,* BY SEX OF EMPLOYEE
AND SIZE OF OFFICE

SIZE OF OFFICE BY NUMBER OF EMPLOYEES	PROVIDED			NOT PROVIDED		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
1 - 25	-	37	54	12	1	60
26 - 100	-	99	79	41	-	88
101 - 500	-	90	87	35	-	76
501 - 1000	-	22	22	6	-	13
1001 - 5000	-	9	9	3	-	13
OVER 5000	-	2	5	1	-	4
SIZE NOT REPORTED	-	14	13	8	-	8

* BY REST AREA IS MEANT A SEPARATE ROOM OR AREA NEAR THE WORK PLACE, EQUIPPED WITH COMFORTABLE FURNITURE AND SET ASIDE SOLELY AS A PLACE OF REST.

OFFICE REST FACILITIES: REST AREAS,* BY SEX OF EMPLOYEE
AND GEOGRAPHIC AREA (ALL OFFICES)

GEOGRAPHIC AREA	REST AREAS*					
	YES			NO		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
CANADA	-	18	22	6	1	15
NORTHEAST U. S.	-	60	53	24	-	77
NORTH CENTRAL U. S.	-	74	75	34	-	50
SOUTHEAST U. S.	-	17	21	6	-	19
CENTRAL PLAINS U. S.	-	18	25	6	-	28
FAR WEST U. S.	-	22	17	7	-	15
UNASSIGNED OR NO ADDRESS REPORTED	-	64	56	23	-	58

* BY REST AREA IS MEANT A SEPARATE ROOM OR AREA NEAR THE WORK PLACE
EQUIPPED WITH COMFORTABLE FURNITURE AND SET ASIDE SOLELY AS A PLACE
OF REST.

OFFICE REST FACILITIES: REST PERIODS, BY SEX OF EMPLOYEE,
AND TYPE OF BUSINESS

TYPE OF BUSINESS	PROVIDE REST PERIODS			DO NOT GRANT REST PERIODS		
	MALE	FEMALE	BOTH	MALE	FEMALE	BOTH
1 ADVERTISING & PUBLISHING	-	6	7	3	-	9
2 BANKING & FINANCIAL	-	7	6	5	-	16
3 COMMUNICATIONS	-	4	4	3	-	3
4 FOOD MFG., SALES & DIST.	-	13	26	8	-	22
5 GOVT., EDUC. & SERVICE	-	7	18	1	-	14
6 INSURANCE	-	8	35	1	-	31
7 MANUFACTURING	-	74	114	36	2	186
8 PUBLIC UTILITIES	-	4	9	2	1	12
9 TRANSPORTATION	-	3	5	-	-	6
10 WHOL. & RET. SALES & DIST.	-	19	21	6	-	26
11 MISCELLANEOUS (ALL OTHERS)	-	19	19	7	-	43

OFFICE REST FACILITIES: LENGTH AND NUMBER OF REST PERIODS
FOR MALE EMPLOYEES, BY TYPE OF BUSINESS

TYPE OF BUSINESS	NUMBER OF REST PERIODS BY LENGTH OF TIME IN MINUTES									
	ONE					TWO*				
	TOTAL	1-5	6-10	11-15	OVER 15	TOTAL	1-5	6-10	11-15	OVER 15
Total - All Companies	39	1	1	22	15	228	12	1	98	117
1 ADVERTISING & PUBLISHING	1	-	-	1	-	6	-	-	4	2
2 BANKING & FINANCIAL	1	-	-	1	-	4	-	-	3	1
3 COMMUNICATIONS	-	-	-	-	-	3	-	-	1	2
4 FOOD MFG. SALES & DIST.	4	-	-	4	-	23	1	-	10	12
5 GOVT., EDUC., & SERVICE	4	-	-	3	1	15	-	-	6	9
6 INSURANCE	9	-	-	5	4	24	3	-	6	15
7 MANUFACTURING	13	-	1	4	8	101	8	-	43	50
8 PUBLIC UTILITIES	-	-	-	-	-	10	-	-	4	6
9 TRANSPORTATION	-	-	-	-	-	4	-	-	1	3
10 WHOL. & RETL. SALES & DIST.	3	-	-	3	-	20	-	1	9	10
11 MISCELLANEOUS (ALL OTHER)	4	1	-	1	2	18	-	-	11	7

* NO COMPANY REPORTED MORE THAN TWO REST PERIODS PER DAY FOR MALE EMPLOYEES

OFFICE REST FACILITIES: LENGTH AND NUMBER OF REST PERIODS
FOR FEMALE EMPLOYEES, BY TYPE OF BUSINESS

TYPE OF BUSINESS	NUMBER OF REST PERIODS BY LENGTH OF TIME IN MINUTES									
	ONE					TWO*				
	TOTAL	1-5	6-10	11-15	OVER 15	TOTAL	1-5	6-10	11-15	OVER 15
Total - All Companies	45	1	3	28	13	413	13	2	230	168
1 ADVERTISING & PUBLISHING	1	-	-	1	-	13	1	-	8	4
2 BANKING & FINANCIAL	1	-	-	1	-	13	-	-	10	3
3 COMMUNICATIONS	-	-	-	-	-	8	-	1	5	2
4 FOOD MFG., SALES & DISTR.	4	-	-	4	-	35	1	1	18	15
5 GOVT., EDUC. & SERVICE	6	-	-	5	1	24	-	-	11	13
6 INSURANCE	10	-	-	6	4	33	3	-	8	22
7 MANUFACTURING	14	-	3	5	6	185	7	-	104	74
8 PUBLIC UTILITIES	-	-	-	-	-	17	-	-	10	7
9 TRANSPORTATION	-	-	-	-	-	8	-	-	3	5
10 WHOL. & RETL. SALES & DIST.	4	-	-	4	-	38	-	-	26	12
11 MISCELLANEOUS (ALL OTHERS)	5	1	-	2	2	39	1	-	27	11

* ONE ADVERTISING & PUBLISHING COMPANY REPORTED FIVE PERIODS GRANTED DAILY TO FEMALES OF FROM 11 TO 15 MINUTES EACH; ONE FOOD MANUFACTURER REPORTED THREE PERIODS OF OVER 15 MINUTES EACH.

OFFICE REST PERIODS EXPERIENCE

EXPERIENCE	YES	NO
ACTUAL SURVEYS OR TESTS HAVE BEEN CONDUCTED TO EVALUATE THE EFFECT OF REST PERIODS	53	730
BASED ON ACTUAL SURVEY OR OPINION, THE FOLLOWING RESULTS ARE REPORTED BY COMPANIES WHO GRANT REST PERIODS:		
IMPROVED MORALE	292	18
INCREASED EFFICIENCY	274	35
REDUCED ABSENTEEISM	72	171
DECREASED TIME PREVIOUSLY SPENT IN LAVATORY	208	79

Between Meal Feeding

Employees were permitted to obtain between-meal refreshments by three out of four companies. Since more than half the companies having a rule against snacks it is certain that rule breaking was tolerated; actually only one company in nine really forbade the practice. The practice was most common in offices having fewer than 25 employees. With this exception, office size had relatively little influence.

Dispensing machines were the most common source for obtaining snacks with company operated eating facilities in second place. Snacks were obtained at the discretion of the employee in most companies. Commercial prices were most commonly charged.

Communications, Banking, Financial and Food Manufacturing firms were most inclined to permit snacks; Transportation and Public Utilities companies least inclined.

Snacks improved morale and increased efficiency in the opinion of the majority of companies. Only 26 in all had made actual surveys or tests. Over half the companies, however, could point to 10 or more years of experience in substantiating their opinion.

Portable snack bars were the least frequently provided sources of food with less than one in 10 companies favoring. Four in 10 depended on dispensing machines; three in 10, company operated eating facilities; less than two in 10 operated lunch rooms or restaurants.

Smaller companies reporting were more inclined to company operated eating facilities. The frequency of lunch room or restaurant operation increased as

the size of the company increased, although the dispensing machine retained its number one position for all except companies with less than 26 employees. The number of companies providing more than one eating facility was not tabulated.

Over half the companies relied on the employees' discretion in obtaining snacks.

Discretion, of course, usually carried the qualification that abuses would be followed by suspense of the privilege. Almost half prescribed regular rest periods. Separate snack periods were reported in only 30 instances.

BETWEEN-MEAL FEEDING EXPERIENCE

EXPERIENCE	YES	NO
IF PAUSES FOR REFRESHMENTS ARE PERMITTED, HAVE ANY ACTUAL SURVEYS OR TESTS BEEN MADE TO EVALUATE THE EFFECT OF SUCH PAUSES?	26	527
BASED ON ACTUAL SURVEY OR OPINION, THE FOLLOWING RESULTS ARE REPORTED BY COMPANIES WHICH PERMIT THIS PRACTICE:		
IMPROVED MORALE	339	45
INCREASED EFFICIENCY	276	83
REDUCED ABSENTEEISM	62	216
REDUCED TURNOVER	85	193

BETWEEN-MEAL FEEDING: SNACK PRIVILEGES, BY TYPE OF BUSINESS

TYPE OF BUSINESS	EMPLOYEES ARE PERMITTED TO OBTAIN BETWEEN MEAL REFRESHMENTS		IF RULES FORBID SNACKS, IS RULE BREAKING TOLERATED	
	YES	NO	YES	NO
Total - All Companies	609	205	127	105
ADVERTISING & PUBLISHING	17	6	4	2
BANKING & FINANCIAL	26	6	2	1
COMMUNICATIONS	10	1	2	-
FOOD MFG., SALES & DIST.	50	13	8	5
GOVT'L., EDUC. & SERVICE	30	10	2	7
INSURANCE	54	21	18	13
MANUFACTURING	280	95	58	51
PUBLIC UTILITIES	17	10	6	4
TRANSPORTATION	8	6	2	4
WHOL. & RETL. SALES & DIST.	53	15	12	7
MISCELLANEOUS (ALL OTHER)	64	22	13	11

BETWEEN-MEAL FEEDING: WHERE SNACKS ARE OBTAINED, BY TYPE OF BUSINESS

TYPE OF BUSINESS	WHERE SNACKS ARE OBTAINED			
	COMPANY OPERATED LUNCHROOM RESTAURANT	COMPANY OPERATED EATING FACILITIES	COMPANY PROVIDED PORTABLE SNACK BAR	DISPENSING MACHINES
Total - All Companies	137	216	69	311
ADVERTISING & PUBLISHING	5	5	1	8
BANKING & FINANCIAL	5	12	1	12
COMMUNICATIONS	6	3	-	4
FOOD MFG., SALES & DIST.	15	13	7	25
GOVT'L., EDUC. & SERVICE	6	18	1	9
INSURANCE	6	25	1	27
MANUFACTURING	73	68	47	155
PUBLIC UTILITIES	1	8	3	12
TRANSPORTATION	1	6	1	3
WHOL. & RETL. SALES & DIST.	10	23	2	29
MISCELLANEOUS (ALL OTHER)	9	35	5	27

Normal Office Hours

STARTING AND STOPPING

8:00 to 8:29 A.M. was the most popular starting time for 51 per cent of all companies. Next most popular was 8:30 to 8:59 A.M. with 35 per cent of all companies. Twelve per cent chose 9:00 A.M. or later.

Early starters, comparatively, were Public Utility, Food Manufacturers and General Manufacturing concerns. Communications and Banking concerns started relatively more frequently at 8:30 to 8:59 A.M. Banks led the group also for the 9:00 A.M. starting period.

There was a slight trend toward earlier starting times the farther west the company location, except that the Central Plains states were fractionally a little more prone to start at 8:00 A.M. than the Far West.

Stopping time at 5:00 to 5:29 P.M. was even more preponderantly popular than the 8:00 A.M. beginning hour; 65 per cent of all companies favoring. Banking, Financial and Insurance companies were comparatively more likely to stop work at from 4:29 to 4:59 P.M.

Four companies in every seven did not work on Saturdays. Of those that did, three out of four preferred the 12:00 to 12:59 P.M. stopping time.

Communications, Insurance and Manufacturing companies in two-thirds of the reports did not work on Saturday. Banking, Financial, Wholesale and Retail Sales firms, in more than two-thirds of the reports, did work on Saturday.

The 40 hour week was in effect for 60 per cent of the reporting companies; 44 hours for 12 per cent; the ratio of companies working under 40 hours weekly as compared to those working over 40 hours was approximately 11 to nine. Banking, Financial and Public Utilities showed the highest proportion holding to a 40 hour week. Communications companies were least committed to this week length, tending definitely toward shorter hours. The remaining companies by a margin of 177 to 154 favored less than a 40 hour work week. Only Food Manufacturers, Wholesale and Retail, and General Manufacturers reported more companies having work weeks of more than 40 hours as compared to those with less than 40 hours.

North Central U.S. and Far West U.S. companies were most partial to the 40 hour week; over 70 per cent of all companies in those areas. Actually, all areas except Canada showed a majority in favor. For companies having other than a 40 hour week, Northeast U.S. and Canadian concerns favored a shorter week; Central Plains U.S. and Far West U.S. concerns favored the longer span.

LUNCH PERIODS

54 per cent of all companies had a 60 minute lunch period while 14 per cent granted 45 minutes. The 30 minute period was in effect for only 15 per cent.

Geographically, Central Plains U.S. and Northeast U.S. companies (3 to 2) favored the 60 minute lunch hour. It was least standard in Southeast U.S.

NORMAL OFFICE HOURS: STARTING TIME ON WEEK DAYS, BY TYPE OF BUSINESS

TYPE OF BUSINESS	WEEK DAY STARTING TIME A.M.				
	BEFORE 7:30	7:30 TO 7:59	8:00 TO 8:29	8:30 TO 8:59	9:00 AND AFTER
Total - All Business	2	12	418	290	98
ADVERTISING & PUBLISHING	-	-	10	11	2
BANKING & FINANCIAL	-	2	1	15	10
COMMUNICATIONS	-	-	3	8	-
FOOD MFG., SALES & DIST.	-	3	41	13	5
GOVT'L., EDUC. & SERVICE	-	-	19	14	7
INSURANCE	-	1	34	32	10
MANUFACTURING	2	4	227	122	23
PUBLIC UTILITIES	-	-	19	7	1
TRANSPORTATION	-	-	7	5	3
WHOL. & RETL. SALES & DIST.	-	1	27	30	12
MISCELLANEOUS (ALL OTHER)	-	1	30	33	25

NORMAL OFFICE HOURS: STOPPING TIME ON WEEK DAYS, BY TYPE OF BUSINESS

TYPE OF BUSINESS	WEEK DAY STOPPING TIME: P. M.					
	BEFORE 3:00	3:00 TO 3:59	4:00 TO 4:29	4:30 TO 4:59	5:00 TO 5:29	5:30 AND AFTER
TOTAL - ALL COMPANIES	2	2	23	177	541	91
ADVERTISING & PUBLISHING	-	-	-	6	15	2
BANKING & FINANCIAL	-	1	1	15	9	6
COMMUNICATIONS	-	-	-	3	7	1
FOOD MFG., SALES & DIST.	-	1	6	18	32	7
GOVT'L., EDUC. & SERVICE	-	-	2	8	28	5
INSURANCE	-	-	3	33	37	4
MANUFACTURING	2	-	10	64	275	34
PUBLIC UTILITIES	-	-	-	3	22	2
TRANSPORTATION	-	-	1	2	10	2
WHOL. & RETL. SALES & DIST.	-	-	-	8	49	13
MISCELLANEOUS (ALL OTHER)	-	-	-	17	57	15

STANDARD WORK WEEK, BY TYPE OF BUSINESS

TYPE OF BUSINESS	NUMBER OF HOURS* WORKED WEEKLY												
	UNDER 35	35	36	37	38	39	40	41	42	43	44	45 AND OVER	
Total - All Companies	4	24	14	33	58	44	494	20	13	5	95	20	
ADVERTISING & PUBLISHING	-	3	-	-	3	-	14	-	-	-	3	-	
BANKING & FINANCIAL	1	-	-	-	3	4	21	-	-	-	1	-	
COMMUNICATIONS	-	1	-	3	2	1	4	-	-	-	-	-	
FOOD MFG., SALES & DIST.	-	1	1	1	5	3	37	2	2	1	9	2	
GOV'T'L.. EDUC. & SERVICES	1	1	-	4	5	1	19	3	1	1	3	2	
INSURANCE	-	2	6	7	12	11	36	-	-	-	3	-	
MANUFACTURING	-	12	5	11	17	15	242	8	6	1	54	7	
PUBLIC UTILITIES	-	1	-	1	-	1	23	-	-	-	1	-	
TRANSPORTATION	-	-	-	-	1	3	7	1	-	1	-	2	
WHOL. & RTL. SALES & DIST.	-	-	-	3	2	1	41	5	2	-	13	3	
MISCELLANEOUS (ALL OTHER)	2	3	2	3	8	4	50	1	2	1	8	4	

* INFORMATION HAS BEEN SUMMARIZED TO THE LOWEST WHOLE HOUR.

LENGTH OF LUNCH PERIODS, BY TYPE OF BUSINESS

TYPE OF BUSINESS	LENGTH OF LUNCH PERIOD IN MINUTES								
	UNDER 30	30	OVER 30 UNDER 45	45	OVER 45 UNDER 60	60	OVER 60 UNDER 90	90	OVER 90
TOTAL - ALL COMPANIES	4	116	23	172	11	449	31	20	10
ADVERTISING & PUBLISHING	-	4	-	3	-	15	1	-	-
BANKING & FINANCIAL	-	2	1	8	2	17	-	-	2
COMMUNICATIONS	-	1	-	-	-	10	-	-	-
FOOD MFG., SALES & DIST.	-	17	2	15	-	27	-	3	-
GOVT'L., EDUC. & SERVICE	-	5	-	10	1	21	1	3	2
INSURANCE	-	7	7	33	5	21	2	2	-
MANUFACTURING	2	67	6	67	2	214	16	5	6
PUBLIC UTILITIES	-	-	-	4	1	20	1	1	-
TRANSPORTATION	-	3	2	1	-	9	-	-	-
WHOL. & RETL. SALES & DIST.	2	2	4	13	-	42	6	1	-
MISCELLANEOUS (ALL OTHER)	-	8	1	18	-	53	4	5	-

APPENDIX D

STANDARD SIZES FOR OFFICE FORMS

Sizes for forms should be determined on the basis of the paper from which the form is to be cut. Standard sizes are those sizes which cut without waste from paper stock and, in addition, lend themselves to economical production on reproduction equipment.

SIZES FOR FLAT FORMS

These sizes apply to ordinary forms printed on *bond*, *ledger*, *onionskin*, *mimeograph*, *safety*, or *lectograph* papers. The sizes have been established on the basis of efficient cutting from the basic sheet. Each size will cut in even units

FLAT FORM SIZES		
SIZES CUTTING FROM BASIC PAPER SIZE (in.)		
17 x 22	19 x 24	17 x 28
2 x $2\frac{5}{8}$ 2 x $5\frac{3}{8}$ 2 x $10\frac{7}{8}$	$2\frac{1}{4}$ x $2\frac{7}{8}$ $2\frac{1}{4}$ x $5\frac{7}{8}$ $2\frac{1}{4}$ x $11\frac{7}{8}$	2 x $3\frac{3}{8}$ 2 x $6\frac{7}{8}$ 2 x $13\frac{3}{4}$
* $2\frac{5}{8}$ x $4\frac{1}{8}$ $2\frac{5}{8}$ x $8\frac{3}{8}$ * $4\frac{1}{8}$ x $5\frac{3}{8}$	* $2\frac{7}{8}$ x $4\frac{5}{8}$ $2\frac{7}{8}$ x $9\frac{3}{8}$ * $4\frac{5}{8}$ x $5\frac{7}{8}$	* $3\frac{3}{8}$ x $4\frac{1}{8}$ * $3\frac{3}{8}$ x $8\frac{3}{8}$ * $4\frac{1}{8}$ x $6\frac{7}{8}$
* $4\frac{1}{8}$ x $10\frac{7}{8}$ * $5\frac{3}{8}$ x $8\frac{3}{8}$ $5\frac{3}{8}$ x $16\frac{3}{4}$	* $4\frac{5}{8}$ x $11\frac{7}{8}$ * $5\frac{7}{8}$ x $9\frac{3}{8}$ $5\frac{7}{8}$ x $18\frac{3}{4}$	* $4\frac{1}{8}$ x $13\frac{3}{4}$ * $6\frac{7}{8}$ x $8\frac{3}{8}$ $6\frac{7}{8}$ x $16\frac{3}{4}$
* $8\frac{3}{8}$ x $10\frac{7}{8}$ $8\frac{3}{8}$ x $21\frac{3}{4}$ * $10\frac{7}{8}$ x $16\frac{3}{4}$ * $16\frac{3}{4}$ x $21\frac{3}{4}$	* $9\frac{3}{8}$ x $11\frac{7}{8}$ $9\frac{3}{8}$ x $24\frac{3}{4}$ * $11\frac{7}{8}$ x $18\frac{3}{4}$ * $18\frac{3}{4}$ x $23\frac{3}{4}$	* $8\frac{3}{8}$ x $13\frac{3}{4}$ $8\frac{3}{8}$ x $27\frac{3}{4}$ * $13\frac{3}{4}$ x $16\frac{3}{4}$ * $16\frac{3}{4}$ x $27\frac{3}{4}$
* These sizes are preferable on the basis of press performance.		

Figure 162. Flat Form Sizes

Reproduced through the courtesy of the Frank M. Knox Co., "The Knox Plan for Printing Control."

from full size sheets. A trim of $\frac{1}{8}$ " has been allowed from the untrimmed unit size (i.e., $8\frac{1}{2}$ " x 11", $5\frac{1}{2}$ " x $8\frac{1}{2}$ ", etc.) in order to allow for square trimming and to compensate for possible undersize basic sheets. The sizes are listed in Figure 162 in accordance with the sheets from which they are cut.

SIZES FOR CARD FORMS

Card sizes for forms are usually printed on *index bristol* stock which comes in basic sizes $20\frac{1}{2}$ " x $24\frac{3}{4}$ ", $22\frac{1}{2}$ " x $28\frac{1}{2}$ ", and $25\frac{1}{2}$ " x $30\frac{1}{2}$ ". The card sizes needed for vertical card files are:

3" x 5" 4" x 6" 5" x 8" 6" x 9"

All of these sizes do not cut exactly from basic paper stock without waste.

The size 3" x 5" cuts from $20\frac{1}{2}$ " x $24\frac{3}{4}$ " basic size 32 cards with just enough trim to provide for cutting and press margins. This size can be used without waste.

The size 4" x 6" cuts from basic stock size $25\frac{1}{2}$ " x $30\frac{1}{2}$ " 30 cards with only a 4% waste of stock, but the 6" dimension cuts 5 times from the basic stock with the result that the printer cannot run the card two-, three-, or four-up. If economy dictates printing the card two- or four-up the printer will have to cut the basic stock with a waste of 20% or more.

The size 5" x 8" cuts 12 cards from $20\frac{1}{2}$ " x $24\frac{3}{4}$ " stock without waste, or 18 cards from $25\frac{1}{2}$ " x $30\frac{1}{2}$ " stock with only a 4% waste, but neither cutting provides completely efficient imposition.

The size 6" x 9" cuts 8 cards out of $20\frac{1}{2}$ " x $24\frac{3}{4}$ " stock with 14% waste but with good imposition.

STANDARD MARGIN ALLOWANCES FOR FORMS

All forms should be designed with sufficient margin on all four sides to allow for efficient mechanical production, depending on the method used. The following margins may safely be used.

Letterpress and offset, or planographic printing. Minimum of $\frac{1}{4}$ " on all four edges of the form.

Penruled forms, with letterpress printing. *Penruling* will "bleed" or extend to the extreme edge of the paper except at the top where space is usually left blank for title and data.

Letterpress printing. Allow minimum of $\frac{1}{4}$ " on all edges of the form for the letterpress printing on penruled forms.

Multigraphed Forms. Minimum of $\frac{1}{4}$ " on all four edges subject to the printing limitations of the model of multigraph being used. Figure 163 gives the various models of multigraphs and shows which standard form sizes and margins can be used on each. Forms *smaller* than those listed can, of course, be printed on each of the models.

Mimeographed Forms. Margins for mimeographed forms are limited by the mimeograph machine and the stencil reproduction process. Limitations usually occur on the side edges of the form rather than on the top and bottom. Figure 164 gives the various models of mimeographs and shows the margins necessary for various sizes of forms. Note that the margins will vary depending on which way the form is designed on the paper. For instance, a standard form size $5\frac{3}{8}$ " x $8\frac{3}{8}$ " may have the design made either the long or the short way of the paper. When made the long way, the side margins have to be $\frac{9}{16}$ " while the top and

MULTIGRAPHED FORMS			
Multigraph Model	Max. Sheet Size (in.)	Max. Printing Area (in.)	Will take standard form size with $\frac{1}{4}$ " margin (in.)
200	11 x 16	$8\frac{1}{8}$ x $13\frac{1}{2}$	$8\frac{3}{8}$ x $10\frac{7}{8}$ $8\frac{3}{8}$ x $13\frac{3}{4}$
300	13 x 17	$12\frac{1}{2}$ x $13\frac{1}{2}$	$8\frac{3}{8}$ x $10\frac{7}{8}$ $8\frac{3}{8}$ x $13\frac{3}{4}$ $9\frac{3}{8}$ x $11\frac{7}{8}$
400	17 x 17	16 x $13\frac{1}{2}$	$13\frac{3}{4}$ x $16\frac{3}{4}$ ** $10\frac{7}{8}$ x $16\frac{3}{4}$ **
400	17 x 22	$16\frac{1}{2}$ x 21	$11\frac{7}{8}$ x $18\frac{3}{4}$ $16\frac{3}{4}$ x $21\frac{3}{4}$ *
* Require $\frac{1}{4}$ " additional margin on $21\frac{3}{4}$ dimension. ** Require $\frac{1}{4}$ " additional margin on $16\frac{3}{4}$ dimension.			

Figure 163. Multigraphed Forms

bottom margins are only $\frac{1}{4}$ ". When the design is made the other or short way, all margins can be $\frac{1}{4}$ ". Note however, that the form as designed the long way can be cut twice on a stencil and run two-up while the form made the short way can only be cut once and run one-up. Always allow $\frac{1}{4}$ " margin even though the machine will print the entire surface of the paper. This should be done to establish uniformity of design with forms produced by letterpress and offset.

MIMEOGRAPHED FORMS							
Model	Maximum Sheet Size (in.)	Standard Form Size (in.)	Maximum Ptg. Area (in.)	Margins to be Allowed (in.)			
				Top	Bottom	Left	Right
76, 77A 77B, 78A 78B, 90 96, 100	9 x 16	$5\frac{5}{8}$ x $8\frac{3}{8}$ * $8\frac{3}{8}$ x $5\frac{5}{8}$ ** $6\frac{7}{8}$ x $8\frac{3}{4}$ * $8\frac{3}{8}$ x $6\frac{7}{8}$ ** $8\frac{3}{8}$ x $10\frac{3}{8}$ $8\frac{3}{8}$ x $13\frac{3}{4}$	$4\frac{7}{8}$ x $7\frac{1}{4}$ $7\frac{7}{8}$ x $4\frac{7}{8}$ $6\frac{5}{8}$ x $7\frac{1}{4}$ $7\frac{7}{8}$ x $6\frac{3}{8}$ $7\frac{1}{4}$ x $10\frac{3}{8}$ $7\frac{1}{4}$ x $13\frac{3}{8}$	$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$	$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$	9/16 $\frac{1}{4}$ 9/16 $\frac{1}{4}$ 9/16 9/16	9/16 $\frac{1}{4}$ 9/16 $\frac{1}{4}$ 9/16 9/16
79	11 x 17	$10\frac{7}{8}$ x $16\frac{3}{4}$	$10\frac{3}{8}$ x $16\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
80	17 x 22	$16\frac{3}{4}$ x $21\frac{3}{4}$	14 x 20	$1\frac{3}{8}$	$1\frac{3}{8}$	$\frac{7}{8}$	$\frac{7}{8}$
Italicized figures are <i>bottom</i> or <i>base</i> dimension of the form. * Can be cut twice on stencil and run two-up. ** Can only be cut once on stencil with long dimension of forms parallel with length of stencil; can only be run one-up							

Figure 164. Mimeographed Forms

Hectograph Forms. The master forms for hectograph printing are printed by letterpress and can, of course, have the same margins as letterpress forms. However, not all hectograph machines will reproduce as large an area as that on the form. Hectograph machines require special margins as follows:

1. Gelatine duplicators. A minimum of $\frac{3}{4}$ " on the *two* edges parallel to the rollers or feeding edge. A minimum of $\frac{1}{4}$ " on the two edges at right angles to the rollers or feeding mechanism.
2. Spirit duplicators. The spirit type duplicator requires a margin of $\frac{3}{8}$ " on the edge of the form which is to be *fed into the machine*. Standard practice is to allow a $\frac{3}{8}$ " margin on the *bottom* of the form with $\frac{1}{4}$ " on the top, left, and right edges.

SPECIFICATION WRITING FOR OFFICE FORMS

Figure 165 shows a master specification sheet on which the forms designer should fill in the items which apply to the form being ordered. A typist should then retype the specification *leaving out* all items which do not apply. Typical finished specifications are shown below.

FORMS SPECIFICATION

Form Number and Title	271 Absence report
Size	$4\frac{1}{8}" \times 2\frac{3}{8}"$
Process	Offset
Print	1 side in black ink
Paper	16 lb. white, No. 4 sulphite bond
Margins	$\frac{1}{4}"$ on $4\frac{1}{8}"$ top, $\frac{1}{4}"$ on $2\frac{3}{8}"$ left
Pad	50 sheets each pad, padded on $4\frac{1}{8}"$ top with chipboard back
Wrap-Label	10 pads per package, sealed and labeled on one end showing Form Number, quantity in package, order number, and date

FORMS SPECIFICATION

Form Number and Title	1204B—Invoice
Size	$8\frac{3}{8}" \times 10\frac{7}{8}"$
Process	Letterpress
Print	1 side in black ink
Paper	Sheet 1—16 lb. white, No. 1 sulphite bond Sheet 2—9 lb. white, No. 1 sulphite onionskin Sheet 3—16 lb. buff, No. 4 sulphite bond
Margins-Front	$\frac{1}{4}"$ on $8\frac{3}{8}"$ top, $\frac{1}{4}"$ on $10\frac{7}{8}"$ left
Register	Must register exactly in pads
Number	Consecutively in triplicate
Gather	3 sheets to set in following order: 16 lb. white bond, 9 lb. white onionskin, 16 lb. buff bond
Pad	33 sets to each pad, padded on $8\frac{3}{8}"$ top with chipboard back
Wrap-Label	5 pads per package, sealed and labeled on one end showing Form Number, quantity in package, serial numbers, order number, and date

FORMS SPECIFICATION

Form Number and Title	1402—Monthly statement of sales
Size	$10\frac{7}{8}" \times 16\frac{3}{4}"$
Process	Letterpress, penrule
Print	2 sides, head-to-head, in black ink—with ruling in seal brown and blue

FORMS SPECIFICATION		TYPIST - Copy only the items that are not crossed off in the left-hand column. DO NOT copy material in brackets or parentheses. Double-space between items. Do not underline.	
FORM NUMBER AND TITLE			
SIZE	X (Always give TOP or BASE dimension first, SIDE dimension last)		
PROCESS	LETTER PRESS <input type="checkbox"/> -- PEN RULE <input type="checkbox"/> -- OFF SET <input type="checkbox"/> -- MIMEO <input type="checkbox"/> -- GRAPH <input type="checkbox"/> -- OTHER:--		
PRINT	SIDES, HEAD-TO-HEAD - HEAD-TO-FOOT, IN INK.		
PAPER	SHEET 1 - lb., (COLOR) (GRADE) (KIND)		
	SHEET 2 - lb., (COLOR) (GRADE) (KIND)		
	SHEET 3 - lb., (COLOR) (GRADE) (KIND)		
	SHEET 4 - lb., (COLOR) (GRADE) (KIND)		
	SHEET 5 - lb., (COLOR) (GRADE) (KIND)		
GRAIN	Must run with direction of form.		
MARGINS-FRONT	on TOP, on LEFT/RIGHT		
MARGINS-BACK	on TOP, on LEFT/RIGHT		
REGISTER	Must register exactly - IN PADS <input type="checkbox"/> - IN BOOKS <input type="checkbox"/> - WITH FORM NO.		
NUMBER	Consecutively in - SINGLE <input type="checkbox"/> - DUPLICATE <input type="checkbox"/> - TRIPLICATE <input type="checkbox"/> - QUADRUPPLICATE <input type="checkbox"/> - QUINTUPPLICATE <input type="checkbox"/>		
	OTHER Start and stop with numbers shown on order.		
SCORE	by PRESS/MACHINE, across the way of form, from the TOP/LEFT		
FOLD	across the way of form, from the TOP/LEFT. After folding the work should be on the OUTSIDE/INSIDE of the folded form.		
PERFORATE	PRESS/MACHINE perforate with ROUND/SLOTTED holes across the way of form from the TOP/LEFT.		
PUNCH	with (no.) (dia.) (shape) holes, centered on TOP/LEFT of sheet. holes to be center-to-center, center of holes from TOP/BOTTOM/LEFT/RIGHT edge.		
ROUND-CORNER	with radius, on corners, on TOP/BOTTOM/RIGHT/LEFT edge of sheet.		
GATHER	sheets to set in following order:-		
PAD	SHEETS/SETS to each pad, padded on TOP/LEFT, with chipboard back.		
BIND	In books with SHEETS/SETS to book. CARBON PAPER: pieces of pencil carbon, perforated for tear-out, bound in back of each book. COVER:		
	STITCH: side wire stitches on TOP/LEFT of book.		
	BINDER'S TAPE: inch (color) over backbone with inch overlap on front.		
WRAP-LABEL	SHEETS/PADS/BOOKS per package, sealed and labelled on one end showing Form number, quantity in package, serial numbers if any, order number and date.		
SPECIAL			

Figure 165. Forms Specification

FORMS SPECIFICATION (*continued*)

Paper	24 lb. white, No. 1 sulphite ledger
Grain	Must run $10\frac{7}{8}$ " direction of form
Margins—Front	$\frac{1}{2}$ " on $16\frac{3}{4}$ " top, 2" on $10\frac{7}{8}$ " left—letterpress
Back	$\frac{1}{2}$ " on $16\frac{3}{4}$ " top, 2" on $10\frac{7}{8}$ " right—letterpress
2-sides	Penrule—1" to first horizontal rule on $16\frac{3}{4}$ " top—bleed left, right, and bottom
Punch	With two $\frac{5}{16}$ " slotted round holes, centered on $10\frac{7}{8}$ " left of sheet, holes to be $7\frac{1}{8}$ " center-to-center, center of holes $11\frac{1}{32}$ " from left edge
Wrap-Label	100 sheets per package, sealed and labeled on one end showing Form Number, quantity in package, order number, and date

STANDARD TYPE FACES FOR FORMS PRINTING

The use of standard type faces in forms design work is desirable for legibility and uniformity of appearance. Figure 166 shows a suggested list of type faces to be used on forms which are to be set in type and printed. The four columns at the right show the manufacturer's serial number for his corresponding face to the sample shown. Manufacturers are American Type Founders, Monotype, Linotype, and Intertype.

Figure 167 shows a suggested list of type faces to be used on forms which are to be composed on the Vari-typer and produced by the offset method.

STANDARD PAPERS FOR OFFICE FORMS

The selection of the correct grade and weight of paper for forms is important both from the standpoint of its usage in clerical routines and economy in production. Figures 168 and 169 provide a guide to the proper selection of paper based on five factors:

1. **Permanency.** The length of time that the paper will resist the deteriorating effects of atmospheric conditions plus the action of residual chemical in the paper.
2. **Durability.** The ability of the paper to stand up under conditions of use such as handling, folding, erasing, etc.
3. **Writing Qualities.** The degree to which the surface of the paper will accept and hold the writing medium.
4. **Erasing Qualities.** The degree to which the surface will stand erasing and accept new writing over the erased area.
5. **Number of Carbon Copies.** The relation between the weight or thickness of the paper and the number of carbon copies which normally can be made by various writing methods.

STANDARD SIZES OF ADVERTISING AND BOOK PAPERS

Advertising and book papers are available in many different sizes, but the most common are 25" x 38" and 35" x 45". These two sizes represent more kinds

of paper and are available in more places than any of the other sizes, some of which are 32" x 44", 28" x 44", 28" x 42", and in some special kinds of stock, 26" x 40". It is always best to check with your printer or your paper dealer before planning to use any of the latter sizes.

Cover papers come in two basic sizes, 20" x 26" (for use with 25" x 38" inside stock) and 23" x 35" (for use with 35" x 45" inside stock). Covers for booklets produced from the other basic paper sizes must be checked carefully for paper waste before planning the final layout.

STANDARD SIZES FOR ADVERTISING FOLDERS

It is possible to plan more than two hundred different folders, all of which will cut and produce without waste from only four basic paper sizes. However, the casual folder can best be planned to cut from either 25" x 38" or 35" x 45" stock. Following is a selected list of sizes for advertising folders.

Four, Eight, or Sixteen Page Folders.

Page Size (in.)	Flat Size (in.)	Paper Stock (in.)
$2\frac{1}{4} \times 3$	$4\frac{1}{2} \times 3$	25 x 38
$2\frac{3}{4} \times 4\frac{1}{4}$	$5\frac{1}{2} \times 4\frac{1}{4}$	35 x 45
$3 \times 4\frac{5}{8}$	$6 \times 4\frac{5}{8}$	25 x 38
$4\frac{1}{4} \times 5\frac{1}{2}$	$8\frac{1}{2} \times 5\frac{1}{2}$	35 x 45
$4\frac{5}{8} \times 6$	$9\frac{1}{4} \times 6$	25 x 38
$5\frac{1}{2} \times 8\frac{1}{2}$	$11 \times 8\frac{1}{2}$	35 x 45
$6\frac{1}{8} \times 9\frac{1}{4}$	$12\frac{1}{4} \times 9\frac{1}{4}$	25 x 38
$8\frac{1}{2} \times 11$	17×11	35 x 45
$9\frac{3}{8} \times 12\frac{1}{4}$	$18\frac{3}{4} \times 12\frac{1}{4}$	25 x 38

Six or Twelve Page Folders.

Page Size (in.)	Flat Size (in.)	Paper Stock (in.)
3×6	9×6	25 x 38
$3\frac{5}{8} \times 4\frac{1}{4}$	$10\frac{7}{8} \times 4\frac{1}{4}$	35 x 45
$3\frac{5}{8} \times 8\frac{5}{8}$	$10\frac{7}{8} \times 8\frac{5}{8}$	35 x 45
$4 \times 4\frac{5}{8}$	$12 \times 4\frac{5}{8}$	25 x 38
$4 \times 9\frac{1}{4}$	$12 \times 9\frac{1}{4}$	25 x 38
$5\frac{3}{4} \times 11$	$17\frac{1}{4} \times 11$	35 x 45
$7\frac{3}{8} \times 8\frac{5}{8}$	$22\frac{1}{8} \times 8\frac{5}{8}$	35 x 45
$8\frac{1}{4} \times 9\frac{1}{4}$	$24\frac{3}{4} \times 9\frac{1}{4}$	25 x 38

Bleed Trims. "Bleeds" are illustrations which extend to the extreme edge of the page. They are produced by printing an oversize illustration and trimming into it when finishing the booklet. *All sizes above must be reduced if bleeds are used.* On the flat sheet size, take an additional $\frac{1}{8}$ " off of each of the four edges. This is equivalent to $\frac{1}{4}$ " on each of the dimensions given above. If you do not make this additional allowance, your printer may have to print your booklet on a larger sheet than the standard and probably entail considerable waste of paper.

Printing Type Faces

CODE NO.	Specimen of Type Face, showing name, size of face, size of body, position of face on body and approximate number of alphabet characters per inch, (shown in Column "A").	A	MANUFACTURER'S SERIAL NUMBER OF TYPE FACE			
			A.T.F.	MONO.	LINO.	INTER.
1	6 POINT LIGHT COPPERPLATE GOTHIC 1234567890	20	1	340J No. 4*	32C	32C
2	6 POINT LIGHT COPPERPLATE GOTHIC 1234567890	18	2	340J No. 3*	32B	32B
3	6 POINT LIGHT COPPERPLATE GOTHIC 1234567890	15	3	340J No. 2*	32A	32A
32	6 POINT CONDENSED LIGHT COPPERPLATE GOTHIC 1234567890	26	32	341J No. 3*	29B	29B
33	6 POINT CONDENSED LIGHT COPPERPLATE GOTHIC 1234567890	22	33	341J No. 2*	29A	29A
22	6 POINT HEAVY COPPERPLATE GOTHIC 1234567890	18	22	342J No. 3**	31B	31B
23	6 POINT HEAVY COPPERPLATE GOTHIC 1234567890	15	23	342J No. 2**	31A	31A
24	6 POINT HEAVY COPPERPLATE GOTHIC 1234567890	13	24	342J No. 1**	31	31
25	12 POINT HEAVY COPPERPLATE GOTH 1234567890	11	25	342J No. 3**	31C	31C
26	12 POINT HEAVY COPPERPLATE 1234567890	10	26	342J No. 2**	31B	31B
27	12 POINT HEAVY COPPER 1234567890	8	27	342J No. 1**	31A	31A
72	6 POINT HEAVY GOTHIC EXTENDED 1234567890	15	72	344J No. 3	No Equiv.	No Equiv.
73	6 POINT HEAVY GOTHIC EXTENDED 1234567890	12	73	344J No. 2	No Equiv.	No Equiv.
74	6 POINT HEAVY GOTHIC EXTEND 1234567890	11	74	344J No. 1	No Equiv.	No Equiv.
75	8 POINT EXTENDED HEAVY COP 12345678	8	12Pt.No. 75	166	No Equiv.	No Equiv.
76	10 POINT EXTENDED HEAVY 1234567	7	12Pt.No. 76	166	No Equiv.	No Equiv.
78	14 PT. HVY. COP 123456	5	12Pt.No. 78	166	12Pt.No. 31	18Pt.No. 31

43	6 POINT BOLD COPPERPLATE GOTHIC 1 2 3 4 5 6 7 8 9 0	15	43	345J No.2	33A	No Equiv.
44	12 POINT BOLD COPPERPLATE GOTHIC 1 2 3 4 5 6 7 8 9 0	13	6Pt.No.44	345J No.4	6Pt.No.33	No Equiv.
A1	12 POINT ALTERNATE GOTHIC CAPITALS 1 2 3 4 5 6 7 8 9 0	13	Alternate Gothic No.1	51J	Condensed Gothic No.2	Condensed Gothic No.2
60	6 Point Sans Serif Light Caps and Lower Case 1 2 3 4 5 6 7 8 9 0	23	Bernhard Gothic Light	329J	Metrolith No.2	1586 Vogue
80	8 Point Sans Serif Light Caps and Lower Case 1 2 3 4 5 6 7 8 9 0	18		329J		
61	6 Point Italic Sans Serif Light Caps and Lower Case 1 2 3 4 5 6 7 8 9 0	23	Bernhard Gothic	329K	No Equiv.	1599 Vogue
81	8 Point Italic Sans Serif Light Caps and Lower Case 1 2 3 4 5 6 7 8 9 0	18	Lt. Italic	329K	No Equiv.	

833

CODE NO.	Specimen of Rule showing name, weight of rule when printed, size of body and position of rule on body. All rules are on 2 point body except hairline parallel on 3 point.	MANUFACTURER'S SERIAL NUMBER OF RULE			
		A.T.F.	MONO.	LINO.	INTER.
H	Hairline	1002	2M10L12	2Pt. 401	Inter-type rules made on 6 Point body only
1/2	1/2 Point Face	1042	2M30L12	2Pt. 402	
1	1 Point Face	1082	2M40L12	2Pt. 403	
2	2 Point Face	1152	2M60L12	2Pt. 404	
HP	Hairline Parallel	1212	3M18L12	2Pt. 301	

*Specify 342J Figures

**Specify 344J Figures

Figure 166. Type Faces for Printed Forms

Vari-typer Faces			
VARI-TYPER FACE NUMBER	Illustration of VARI-TYPER faces showing size and spacing of characters and figures	NO. OF CHARACTERS TO INCH	NO. OF LINES TO INCH
180	PARK MEDIUM, CAPITALS - 1234567890	*16-18	*9-12
180	Park Medium, Capitals and Lower Case - 1234567890	*16-18	*9-12
180L	PARK MEDIUM, CAPITALS - 1234567890	16	6-9
180L	Park Medium, Capitals and Lower Case - 1234567890	16	6-9
226	LIGHT LINE GOTHIC, CAPITALS - 1234567890	12	6
226	Light Line Gothic, Capitals and Lower Case - 1234567890	12	6
270	EXPRESS GOTHIC SMALL, CAPITALS - 1234567890	*12-14	6
270	Express Gothic Small, Capitals and Lower Case - 1234567890	16	6
96	VARI-TYPER GOTHIC, CAPITALS - 1234567890	12	6
96	Vari-Typer Gothic, Capitals and Lower Case - 1234567890	12	6
229	EXPRESS GOTHIC, CAPITALS - 1234567890	12	6
229	Express Gothic, Capitals and Lower Case - 1234567890	12	6
434	MEDIUM GOTHIC, CAPITALS - 1234567890	10	4½
434	Medium Gothic, Capitals and Lower Case - 1234567890	12	4½
434-14-10	HEAVY GOTHIC, CAPITALS - 1234567890	10	4½
434-14-10	Heavy Gothic, Capitals and Lower Case - 1234567890	12	4½

250-6-16	PRESIDENT, CAPITALS - 1234567890		*9-12
250-6-16	President, Capitals and Lower Case - 1234567890		*9-12
211	MINIATURE ITALIC, CAPITALS - 1234567890		*16-18
211	Miniature Italic, Capitals and Lower Case - 1234567890	16 16	6-9 6-9

The above VARI-TYPER faces are recommended for use in designing office and plant Forms. If all of these faces are not available but other faces are available, type in sample lines of those faces in the space below, giving the same character display and information as shown above.

*Extra spacing depending on model of Vari-Typer being used.

Figure 167. Type Faces for Offset Forms

BOND AND LEDGER PAPERS Use and Selection Table

Permanency	Durability	Grade of Bond or Ledger to be used	Writing Qualities		Erasing Qualities	
			Type- writer	Pencil	Type- writer	Pencil
ABSOLUTELY TEMPORARY - used once and discarded	little or no handling - Durability, none.	Bleached Sulphate (probably poor color)	Good	Good	Fair	Fair
		Low grade Sulphate	Fair	Fair	Poor	Poor
		No. 4 Sulphate - no ground wood	Good	Good	Poor	Poor
KEPT IN FILES UP TO 7 YEARS (If filed papers are subject to gases or smoke in atmos- phere select next higher grade than the one indicated)	Handled very little	No. 1 or No. 2 Sulphate	Good	Good	Fair	Fair
	Handled often for short time	2 1/2 Rag or Sulphate with high alpha cellulose content	Excel	Excel	Good	Good
	Severe handling or rough usage		Excel	Excel	Excel	Excel
KEPT IN FILES 7 TO 15 YEARS (If filed papers are subject to gases or smoke in atmos- phere select next higher grade than the one indicated)	Handled very little	No. 1 or No. 2 Sulphate	Good	Good	Fair	Fair
	Handled often for short time	2 1/2 Rag or Sulphate with high alpha cellulose content	Excel	Excel	Good	Good
	Severe handling or rough usage	50% Rag	Excel	Excel	Excel	Excel
KEPT IN FILES 15 TO 40 YEARS (If filed papers are subject to gases or smoke in atmos- phere select next higher grade than the one indicated)	Handled very little	2 1/2 Rag or Sulphate with high alpha cellulose content	Excellent		Good	Good
	Handled often for short time	50% Rag	Writing Qualities		Excel	Excel
	Severe handling or rough usage	7 1/2 Rag			Excel	Excel
KEPT IN FILES 40 TO 75 YEARS (If filed papers are subject to gases or smoke in atmos- phere select next higher grade than the one indicated)	Handled very little	50% Rag	Excellent		Excellent	
	Handled often for short time	7 1/2 Rag	Writing Qualities		Erasing Qualities	
	Severe handling or rough usage	100% Rag			Excellent	
ABSOLUTELY PERMANENT - kept in files more than 75 years	Moderate handling	100% Rag	Excellent		Excellent	
	Severe handling or rough usage	100% all new white paper	Writing Qualities		Erasing Qualities	

NUMBER OF CARBON COPIES AND OPACITY

Basic Weight of Bond Paper	Carbon copies in Addition to Original (See note)			Opacity - No. of Sides in Print	
	Typewriter or Business Machine	Noiseless Typewriter	Electric Writing Machine	Without Titanium Oxide	With Titanium Oxide
13 Pound	Four-five	Three-four	Six-eight	Three	1 Side only
16 Pound	Three-four	Two	Five-seven	Two	1 Side; 2 if small amount on reverse
20 Pound	Two-three	One	Four-five	One	2 Sides
24 Pound	One	One	Three	One	2 Sides

Note: Carbon copies based on normal typing operations, both correspondence and tabular, with average carbon paper. Poor grades of paper may give more copies - poor grade or worn carbon paper may give fewer copies. For a greater number of carbon copies see "Unbonding".

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Figure 168. Selection of Bond and Ledger Papers

BRISTOL PAPERS

Use and Selection Table

Permanency	Durability	Grade of Bristol to be used	Writing Qualities				Erasing Qualities			
			Type-written	Pencil	Ink	Type-written	Pencil	Ink	Type-written	Pencil
KEEP IN FILES UP TO 7 YEARS (If filed papers are subject to gases or smoke in atmosphere select next higher grade than the one indicated)	Handled very little	No. 1 Printing Bristol	None	Fair	Poor	None	Poor	None	Poor	Poor
	Handled often for short time	No. 4 Salpêtre Index Bristol	Fair	Good	Fair	Fair	Good	Fair	Good	Fair
	Severe handling for life of form or general rough usage	2½% Rag Index Bristol or Sulphite with high alpha cellulose content	Good	Excel	Excel	Good	Excel	Excel	Good	Good
KEEP IN FILES 7 TO 10 YEARS (If filed papers are subject to gases or smoke in atmosphere select next higher grade than the one indicated)	Handled very little	No. 1 Salpêtre Index Bristol	Fair	Good	Good	Fair	Good	Good	Fair	Fair
	Handled often for short time	2½% Rag Index Bristol or Sulphite with high alpha cellulose content	Good	Excel	Excel	Good	Excel	Excel	Good	Good
	Severe handling for life of form or general rough usage	7½% or 100% Rag Index Bristol	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel
KEEP IN FILES 10 TO 100 YEARS (If filed papers are subject to gases or smoke in atmosphere select next higher grade than the one indicated)	Moderate handling	7½% or 100% Rag Index Bristol	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel
	Severe handling or rough usage	100% Rag Index Bristol or 100% all new white Rag Index Bristol	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel

* Because bristols are thicker and harder to use in typewriter, writing qualities are indicated as being lower. Only lighter weight bristols are suitable and the grain must run parallel with the pattern of the machine.

ONIONSKINS - MANIFOLDS

Use and Selection Table

Permanency	Durability	Grade of Onionskin to be used	Writing Qualities			Erasing Qualities		
			Type-written	Pencil	Ink	Type-written	Pencil	Ink
KEEP IN FILES LESS THAN 15 YEARS (If filed papers are subject to gases or smoke in atmosphere select next higher grade than the one indicated)	Handled very little	No. 1 or No. 2 Salpêtre	Good	Good	Fair	None	Poor	None
	Handled often for short time	2½% Rag	Excel	Excel	Good	Fair	Good	Fair
	Severe handling	7½% Rag	Excel	Excel	Good	Excel	Good	Good
KEEP IN FILES 15 TO 75 YEARS (If filed papers are subject to gases or smoke in atmosphere select next higher grade than the one indicated)	Handled very little	2½% Rag	Excellent Writing Qualities			Fair	Good	Fair
	Handled often for short time	7½% Rag				Good	Excel	Good
	Severe handling	100% Rag				Excel	Excel	Excel
KEEP IN FILES MORE THAN 75 YEARS	Moderate handling	100% Rag	Excellent Writing Qualities			Excellent Erasing Qualities		
	Severe handling	100% all new white rag						

Number of Carbon Copies

Basic Weight of Onionskin	Carbon Copies in Addition to Originals**			
	Regular Typewriter	Electronic Typewriter	Writing Machine	Pencil
7 Pounds	Six-eight	Twelve-Fourteen*	Five-six	
9 Pounds	Six-eight	Four-six	Nine-twelve*	Four-five

* Care must be taken when adjusting the stroke on the Electronic Writing Machine not to make it so heavy that the keys may cut the paper on the original. This happens if any keys are slightly out of adjustment.

** See note on Bond and Ledger Papers selection table.

Approved by the
Bureau of Standards
March 10, 1938

Figure 169. Selection of Bristol Papers and Onionskins

STANDARD SIZES FOR ADVERTISING BOOKLETS

The sizes for booklets given below are for so-called "upright" shapes, that is, booklets which are bound on the long dimension and have the short dimension as a base. If it is desired to bind the booklet on the short dimension and have the long dimension as a base (commonly known as oblong or horizontal shapes) the following list of sizes may be used but $\frac{1}{8}$ " should be subtracted from the short or lesser dimension and $\frac{1}{8}$ " added to the long or greater dimension. This is due to the fact that all edges are trimmed except the binding edge and a change in binding edge changes the over-all trimming of the other three edges. The first dimension given is the *base*, the second dimension is the *binding edge*.

Eight, Sixteen, and Thirty-Two Page Booklets.

Paper Size (in.)	Basic Stock (in.)
$2\frac{1}{4} \times 2\frac{7}{8}$	25 x 38
$2\frac{5}{8} \times 4\frac{1}{8}$	35 x 45
3 x $4\frac{1}{2}$	25 x 38
$4\frac{1}{4} \times 5\frac{3}{8}$	35 x 45
$4\frac{5}{8} \times 6$	25 x 38
$5\frac{3}{8} \times 8\frac{3}{8}$	35 x 45
6 x $9\frac{1}{8}$	25 x 38
$8\frac{1}{2} \times 11$	35 x 45
$9\frac{1}{4} \times 12\frac{1}{8}$	25 x 38

Twelve and Twenty-Four Page Booklets. (Note:—In some cases your printer may choose to use combinations of four, eight, and sixteen page signatures, or booklets, to produce twelve and twenty-four page booklets. In such cases he will want the sizes given for eight, sixteen, and thirty-two page booklets. The sizes listed below are for twelve and twenty-four page booklets which produce as single units from standard paper sizes.) The first dimension given is the *base*, the second dimension is the *binding edge*.

Page Size (in.)	Basic Stock (in.)
$2\frac{1}{4} \times 3\frac{7}{8}$	25 x 38
$2\frac{5}{8} \times 5\frac{1}{2}$	35 x 45
3 x $2\frac{7}{8}$	25 x 38
3 x 6	25 x 38
$3\frac{5}{8} \times 8\frac{3}{8}$	35 x 45
4 x $9\frac{1}{8}$	25 x 38
$4\frac{1}{4} \times 3\frac{1}{2}$	35 x 45
$4\frac{1}{4} \times 7\frac{1}{4}$	35 x 45
$4\frac{5}{8} \times 3\frac{7}{8}$	25 x 38
$4\frac{5}{8} \times 8$	25 x 38
$5\frac{3}{8} \times 5\frac{1}{2}$	35 x 45
6 x 6	25 x 38
$8\frac{1}{2} \times 3\frac{1}{2}$	35 x 45
$8\frac{1}{2} \times 7\frac{1}{8}$	35 x 45
$9\frac{1}{4} \times 7\frac{7}{8}$	25 x 38

Bleed Trims. Bleeds, as explained under the standard folder size table, must be allowed for in booklets by subtracting $\frac{1}{8}$ " from each edge except the binding edge. In other words, $\frac{1}{8}$ " on the front, $\frac{1}{8}$ " on the top and $\frac{1}{8}$ " on the bottom edges must be subtracted from the dimensions given above.

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